ARTIFICIAL INTELLIGENCE, AUTOMATION, AND PROLETARIANIZATION OF THE LEGAL PROFESSION

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I. INTRODUCTION

Recent advances in computer programming, broadly categorized as "artificial intelligence," ("AI") have renewed debates over machines as viable replacements for human lawyers. Some prominent lawyers and legal scholars now adhere to a vision of the future heavily seasoned with Silicon Valley-style techno-utopianism: the legal profession may endure but only in a form in which it would be almost unrecognizable today, while legal innovators will need to immerse themselves in the possibilities opened up by artificial intelligence in order to survive. For others, the view of artificial intelligence and its potential application to law is more limited, as they argue for the impossibility of automating many essential aspects of legal service.

Although it is tempting to view these visions as polar opposites, to do so would ignore key assumptions about the nature of AI technology in which the two visions seem to share: that technological develop-

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ment follows its own course and that the widespread adoption of technologies is primarily determined by objective measures of efficacy. This essay offers an alternate Marxian account of legal AI which places it in the larger history of automation and proletarianization. In Part I, I introduce the topic of AI and how AI has been put to use in the market for legal services. In this section, I argue that AI is a malleable and ideologically loaded concept that shapes perceptions about the socially acceptable uses of automation. Because so much of the legal AI debate is based upon assumptions about the nature of professional service, Part II introduces a materialist view of professionalism and its functional role within capitalist society. This lays the groundwork for a materialist perspective on the debates over AI discussed in Part III. In Part IV, I take up the implicit challenge of AI proponents that replacing lawyers with AI would improve society because the legal profession as it exists actually performs a disservice to society. While I remain agnostic on this question, I argue that society and young lawyers alike are even less well served by a reactionary ideology that encourages lawyers to ignore the real class realignment that is already taking place within the profession.

II. A DESCRIPTION OF AI AND LEGAL AUTOMATION

A. What Do We Mean by Artificial Intelligence?

Discussions of artificial intelligence are particularly troubled by ambiguity stemming from the lack of a consensus definition. However, modern theories of AI are usually traced back to two quite different discussions of the concept dating to the 1950's. The first was a 1950 paper published by Alan Turing, "Computer Machinery and Intelligence," which articulated the Turing test "as an operational measure of intelligence for computers."[1] The Turing test consists of a "blind" interaction between a human observer, another human subject, and a machine. The observer asks the subject and the machine a series of questions; if the observer cannot tell which is the machine and which is the human subject, the machine is considered to have "passed" the test and displayed intelligence.[2] A second significant expression of the idea took place at the 1956 Dartmouth Summer Research Project on Artificial Intelligence. It was here that John McCarthy originally used the term "artificial intelligence " to describe the specific problem of using computers to precisely model the internal processes of human intelligence.[3]

1. Antonios Michailidis & Roy Rada, *Artificial Intelligence*, *in* Encyc. of Commc'n and Info., 55–60 (Jorge Reina Schement ed., 2002).
2. *Id.*
3. *Id.*

The McCarthy and Turing conceptions of AI diverged on the ultimate question of whether artificial intelligence must reflect the subjective workings of the human mind or merely provide an outward, objective manifestation of doing so. However, these early modes of conceptualizing AI shared an exacting *a priori* standard for determining whether a machine process could be considered intelligent. Early AI research—what is now often referred to as "good old-fashioned AI (GOFAI)"—was heavily influenced by the McCarthy approach to AI; it attempted to model human reasoning using symbolic logic.[4] This approach has limitations, both as a model of cognition and in its practical feasibility: it emphasizes deductive reasoning (from the general to the specific) which places a heavy burden on programmers to anticipate and code general rules, and on systems to store and reason based on these rules[5] It also faces difficulty modeling the other major aspect of human reasoning, i.e. the ability to engage in inductive reasoning or to make generalizations based on limited information.[6] Although GOFAI remains widespread[7] and has had some well-known commercial successes, research in AI over the past twenty years has tended to focus on "machine learning" or "connectionist" approaches to artificial intelligence, enabled by widespread availability of web-based data and cloud computing.[8] Machine learning is able to outwardly mimic human capacities such as making predictions based on past events, category recognition, and "understanding" natural language.[9] However, the way in which these tasks are accomplished does not come close to modeling the way human cognition accomplishes similar feats.[10] Humans possess a built-in inductive bias, an evolutionary adaptation that allows even very young children to recognize important categories of objects, based on as little as one instance.[11] In order for

4. *See* Tadahiro Taniguchi, *Simulation for AI*, *in* Humanoid Robotics: A Reference, 2087, 2088 (Ambarish Goswami & Prahlad Vadakkepat eds., 2019).

5. *See* Margaret A. Boden, *GOFAI*, *in* The Cambridge Handbook of Artificial Intelligence., 89, 95 (Keith Frankish & William M. Ramsey eds., 2014).

6. *Id.*; Nikesh Muthukrishnan et al., *Brief History of Artificial Intelligence*, 30 Neuroimaging Clinics of N. Am. 393, 396 (2020).

7. Boden, *supra* note 5, at 103.

8. Stanford U., One Hundred Year Study on Artificial Intelligence, Artificial Intelligence and Life in 2030, at 14 (2016), https://ai100.stanford.edu/sites/g/files/sbiybj18871/files/media/file/ai100report10032016fnl_singles.pdf.

9. *See* Bernard Marr, Artificial Intelligence in Practice 4 (2019).

10. Daniel Martin Katz, *Quantitative Legal Prediction - Or - How I Learned to Stop Worrying and Start Preparing for the Data-Driven Future of the Legal Services Industry*, 62 Emory L.J. 909, 918 (2013).

11. Nick Dyer-Witheford, Atle Mikkola Kjosen & James Steinhoff, Inhuman Power: Artificial Intelligence and the Future of Capitalism 123 (2019).

machines to mimic this innate human ability, machine learning must rely on statistical models applied to extremely large sets of data.[12]

What computer scientists today regard as AI has relatively little to do with the subjective test of intelligence espoused by McCarthy, and the term artificial intelligence is even used in a way that reflects a loose *a posteriori* standard, describing what have, in fact, proved to be feasible approaches to the problem of mimicking human intelligence. For example, one popular programming textbook defines artificial intelligence by simply listing the approaches broadly considered to be part of the study of artificial intelligence, i.e. "1. Natural language processing; 2. Knowledge representation; 3. Automated reasoning; 4. Machine learning; 5. Computer vision; 6. Robotics."[13] However, the fact that usage of the term AI has adapted to accommodate to the realities of workable approaches to computer programming, especially by experts in the field, has not necessarily been well-articulated in the wider discourses attempting to assess the social consequences of widespread adoption of AI. For example, there is evidence that popular understandings of AI continue to implicitly incorporate an impossibly exacting *a priori* approach more compatible with earlier approaches to theorizing AI:one manifestation of this is the so-called "AI effect", "whereby as soon as AI can do something, it is no longer considered to require intelligence."[14] A similar circular logic underlies the colloquial understanding of AI which defines it simply as any technology which allows computers "to do things that normally require human intelligence."[15] Defining artificial intelligence as that which is "normally" done by a human requires a normative judgment, which is here smuggled into the definition of a putatively scientific concept. What we consider to be the "normal" range of uniquely human activities is under continuous renegotiation, in part because of the continuing development of technology designed to automate tasks formerly performed by humans.

Many discussions of AI fail to resolve or acknowledge this fundamental ambiguity, blurring the lines between "weak" or "soft" AI and the as yet still highly theoretical aspiration to create a precise replica

12. *See* ETHEM ALPAYDIN & FRANCIS BACH, INTRODUCTION TO MACHINE LEARNING 2 (2014).

13. William Sims Bainbridge, *Artificial Intelligence*, *in* LEADERSHIP IN SCIENCE AND TECHNOLOGY: A REFERENCE HANDBOOK 464, 466 (William Sims Bainbridge ed., 2012).

14. DYER-WITHEFORD ET AL. *supra* note 11, at 9.

15. Melanie Reid, *A Call to Arms: Why and How Lawyers and Law Schools Should Embrace Artificial Intelligence*, 50 U. TOL. L. REV 477, 478 (2019) (quoting Eddie Chou, Professor, Univ. of Toledo, Remarks at the University of Toledo Law Review Role of Technology in Professional Advice Symposium (Oct. 12, 2018)).

of human intelligence ("strong AI").[16] Claims about the former being able to automate a given task may therefore be tacitly conflated with (much stronger) claims about the latter. This confusion has profound consequences, for as will be discussed in further detail below, the most successful method of simulating intelligence to date remains machine learning. Machine learning departs from human cognition in socially significant ways, in that supposedly labor-saving automation frequently disguises the need for massive amounts of human labor to create, clean, train, and correct the data on which it relies.[17] This labor is generally low skilled, and often unpaid or paid on a piecework basis outside of legally and socially recognized employment relationships.[18]

1. Legal AI and Lawyers' Labor

The development of "expert systems" in the 1980's gave rise to the first wave of speculation regarding the ability of machines to alter or replace the practice of law by human experts.[19] The first generation of expert systems used probabilistic rules to permit reasoning and recommend outcomes using professional domain knowledge, in fields such as finance.[20] Legal expert systems were among the first programs designed to transfer significant elements of legal practitioners' knowledge and judgment to a computer system, such as the ability to arrive at a conclusion of law or predict the outcome of a case.[21]

The successful development of "machine learning" ("ML") approaches to programming has renewed interest in the development of legal AI and sets the terms for much of the current debate over the potential of AI to disrupt the profession. The success of ML has already been incorporated into a wide variety of products directed both at lawyers and end consumers of legal services. Of these categories, current labor market impacts can be seen most clearly in the case of

16. *See* TOM TAULLI, ARTIFICIAL INTELLIGENCE BASICS 4 (2019) (discussing strong versus weak AI).

17. DYER-WITHEFORD ET AL., *supra* note 11, at 98; Benedetta Catanzariti et al., *The Global Labours of AI and Data Intensive Systems*, *in* Companion Publication of the 2021 Conference on Computer Supported Cooperative Work and Social Computing 319, 320 (2021).

18. *See infra* notes 110–112 and accompanying text.

19. *See, e.g.,* Hugh Gibbons, *Modeling the Legal Information Process*, 12 LEGAL STUD. F. 285 (1988); Nancy Blodgett, *Artificial Intelligence Comes of Age*, 73 A.B.A. J. 68 (1987); Richard E. Susskind, *Artificial Intelligence, Expert Systems and Law*, 5 DENNING L.J. 105 (1990); Jacques Fremont, *Computerized Administrative Decision Making and Fundamental Rights*, 32 OSGOODE HALL L. J. 817 (1994); Jeanne Lee, *The Era of the Computer Judge*, 1995 U.C.L. JURIS. REV. 249 (1995).

20. Michel Mitri & Hal P. Kirkwood, Jr., *Expert Systems*, *in* ENCYCLOPEDIA OF MANAGEMENT 279, 279-281 (Marilyn M. Helms ed., 5th ed. 2006).

21. Donald H. Berman & Carole D. Hafner, *The Potential of Artificial Intelligence to Help Solve the Crisis in Our Legal System*, *32* COMM. OF THE ACM *928* (1989).

technology assisted review ("TAR"). Due to recent technological improvements, use of TAR to handle large discovery requests has been on the rise since 2012.[22] TAR incorporates natural language processing—a branch of machine learning—to sift through voluminous records produced in the course of discovery.[23] Such document review was once the bread and butter of young associates beginning their practice at large firms– even if they never made partner, at least for a time they enjoyed the benefits and high salary associated with full-time employment with the firm.[24] Prior to the advent of workable automation, law firms were attempting to reduce labor costs associated with document review by using outside contract attorneys who could be paid by the hour and denied benefits such as health insurance or retirement benefits,[25] or "offshored" to locations where workers would accept lower wages.[26] Technology assisted review has made it possible to reduce these costs still further by replacing the most repetitive aspects of the work with automated processes, although it still requires some attorney input.[27] This input includes the work of supervisors who are entrusted with training the system to recognize relevant documents, and the work of attorneys who must still review a limited subset of results produced by the program.[28] Even so, researchers found that TAR would have a "strong impact" on the type of mid-level document review work that entry-level associates or temporary workers formerly performed.[29]

Other products incorporating machine learning are even more ubiquitous, although their potential to alter or displace attorneys' work does not yet appear to have been fully realized. For example, while machine learning technology has already been incorporated in computer assisted legal research platforms for many years,[30] companies such as Lexis and Westlaw usually market developments such as natural language search as an enhancement to their existing products

22. Dana Remus & Frank Levy, *Can Robots Be Lawyers: Computers, Lawyers, and the Practice of Law*, 30 GEO. J. LEGAL ETHICS 501, 516 (2017).

23. Michael Mills, *Artificial Intelligence in Law: The State of Play* 1, 4 (2016), https://www.neotalogic.com/wp-content/uploads/2016/04/Artificial-Intelligence-in-Law-The-State-of-Play-2016.pdf.

24. *See* Jeff Brown, *Living Greatly in the Law: Traditional Ideals for the Electronic Age*, 54 HOUS. L. REV. 1283, 1288-89 (2017).

25. Cindy Eidnes, *Contract Legal Work Offers Opportunities*, 58 BENCH & B. MINN. 31 (2001).

26. Mike Dolan & John Thickett, *Document Review: Unbundling and Offshoring*, 71 TEX. B.J. 730, 731 (2008); Anna Stolley Persky, *Under Contract*, 28 WASH. LAW. 23, 26 (2014).

27. Remus & Levy, *supra* note 22, at 516.

28. Remus & Levy, *supra* note 22, at 516.

29. Remus & Levy, *supra* note 22, at 533-34.

30. Mills, *supra* note 23, at 3.

for attorneys rather than as a development designed to cut out the attorney as middle-man between the legal system and the clients' desired outcomes. Other more recent developments present a clearer challenge to the idea of employing human experts as researchers. The best known of these is ROSS Intelligence, which has developed a bankruptcy research program incorporating IBM Watson's Q&A technology.[31] ROSS works by asking "users to evaluate search results and feeds those evaluations back to the engine . . . ."[32] Similarly, efforts to develop AI technology in order to automate form and document drafting reflect a mixture of tools currently marketed to attorneys as streamlining largely repetitive processes such as drafting patents, reviewing contracts, and creating templates for nondisclosure agreements.[33] However, there are others, such as Legal Zoom and DoNotPay that are designed to bypass lawyers completely by generating court documents based on a simulated interview with the client.[34] Other forms of AI which are currently developing rapidly include outcome prediction and contract analysis tools designed to "understand[ing] and manag[e] the rights, obligations and risks in a company's contracts, and rationaliz[e] the processes by which contracts are initiated . . . ."[35] Such tools have often been marketed at firms as enhancing the advice traditionally given to clients, such as the likely outcome of a proposed action by leveraging the computer's ability to conduct quantitative analysis in a way that was previously impossible.[36] However, the incorporation of machinic rationality into the provision of legal advice itself presents the potential to destabilize the norm of professional judgment as the ultimate arbiter of expertise.

2. Two Views of AI and the Future of Legal Work

Even though there is general recognition that AI technologies are already "disrupting" legal practice, ideas about where this disruption will eventually take the profession are diverging. In popular media, the predictions tend to be radical and the tone alarmist, anticipating near-total elimination of work for lawyers in the near future.[37] A slightly more measured discussion taking place in academic and professional journals tends to break down into two basic perspectives.

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31. Mills, *supra* note 23, at 3.
32. Mills, *supra* note 23, at 3-4.
33. Reid, *supra* note 15, at 480.
34. Reid, *supra* note 15, at 480.
35. Michael Mills, *Using AI in Law Practice: It's Practical Now*, L. PRAC., July-Aug. 2016, at 48, 51.
36. *See* Daniel Martin Katz, *Quantitative Legal Prediction–or–How I Learned to Stop Worrying and Start Preparing for the Data-Driven Future of the Legal Services Industry*, 62 EMORY L.J. 909, 929 (2013).
37. *See* Mills, *supra* note 23, at 2.

The first is what I will call the "skeptical" approach to AI, and it emphasizes the limits of the new technology and continued social utility of professional norms and training. The second is what I will call the "optimistic" approach (although accelerationist may be a more accurate description of some of its proponents.) This optimistic view of AI emphasizes its potential to replace lawyers in the very near future and urges the profession to adapt itself accordingly.

With regard to predictions about the near-term effects of AI, the skeptical position emphasizes that in its current state, AI is not in a position to displace the activities of many human workers, and is unlikely to reach such a stage at any point in the near future. For example, a 2017 article by Dana Remus and Frank Levy attempted to make an empirical case for this position.[38] Using data about actual law firm time usage, they analyzed thirteen task categories under which the firms billed their hours, arguing that at present, only document review was likely to have "strong employment effects" due to automation.[39] Based on their analysis of the actual time spent by law firms on each task, they concluded that although "it is frequently argued in popular writing on artificial intelligence that the automation of legal work causes weakness in the market for lawyers. . . . [T]he argument is overstated and that a more important cause is a basic imbalance between supply and demand."[40]

The empirical thrust of this position is often accompanied by a normative emphasis on the importance of professional ethics and the uniqueness of human judgment. For example, Tammy Oltz writes that:

> [C]ertain types of legal work are virtually impossible to automate. In spite of futuristic speculation about "robot lawyers," we are still light-years away from machines that are capable of replicating some of the most important legal skills – for example, the ability to think creatively, provide empathy, and offer strategic advice. Artificial intelligence is unlikely to ever produce machines capable of developing innovative legal approaches, delivering oral arguments, or performing other important, non-routine tasks.[41]

While AI skeptics such as Remus and Levy and Oltz do not typically advocate the wholesale rejection of automation–the inherent limitations of the technologies themselves are regarded as the cause for minimal ability to replace workers–sagacity and professional judgement are believed to be even more important than ever in the face of

38. *See* Remus & Levy, *supra* note 22.
39. Remus & Levy, *supra* note 22, at 530.
40. Remus & Levy, *supra* note 22, at 536.
41. Tammy Oltz, *Can a Computer be a Lawyer?*, GAVEL, Winter 2019, at 8.

so much hysteria surrounding AI in the media. The response of those currently employed in the field should be to exercise a modulating influence by distancing themselves from the hype, carefully evaluating new technologies, and training others in their organizations to do the same—a set of tasks that Jamie Baker describes as "avoid[ing] premature disruption."[42]

On the other hand, optimists hold that AI is nearing the point of technological advancement in which most if not all tasks currently performed by lawyers will be capable of being performed by artificial intelligence. The clearest statement of this position has been articulated by Richard and Daniel Susskind:

> In the long run, increasingly capable machines will transform the work of professionals, giving rise to new ways of sharing practical expertise in society. This is the central thesis of our book. We cannot commit to timeframes, in large part because the speed of change is not in our hands. But we are confident that the change will constitute an incremental transformation rather than an overnight revolution. In the language of the book, the shift itself can be characterized in many ways: as the industrialization and digitization of the professions; as the routinization and commoditization of professional work; as the disintermediation and demystification of professionals. Whatever terminology is preferred, we foresee that, in the end, the traditional professions will be dismantled, leaving most (but not all) professionals to be replaced by less expert people and high-performing systems. We expect new roles will arise, but we are unsure how long they will last, because these too, in due course, may be taken on by machines.[43]

Other influential futurists argue in favor of a weaker version of this position, allowing that a core of legal work will continue to be performed by a few high powered "innovators" who are able to understand and exploit advances in technology. One of the most-cited articles on legal AI by John O. McGinnis and Russell G. Pearce states:

> [E]ven if average lawyers will be disadvantaged, some superstars may earn even greater returns. First, with great metrics of comparison, discerning who the superstars are will be easier. Second, superstars can extend their research through technology: they deliver their innovative solutions to problems faster and to a broader range of clients. Some of these innovations will be in traditional lawyering, such as creating new forms of familiar transactions and shaping sur-

42. Jamie Baker, *2018: A Legal Research Odyssey: Artificial Intelligence as Disruptor*, 110 L. LIBR. J. 5, 6 (2018).

43. RICHARD SUSSKIND & DANIEL SUSSKIND, THE FUTURE OF THE PROFESSIONS: HOW TECHNOLOGY WILL TRANSFORM THE WORK OF HUMAN EXPERTS 303 (2016).

> prising and novel arguments. Partners may also be able to substitute machines for associates, thereby gaining more leverage at lower cost. Third, for a range of important transactions and litigation, even small improvements in outcomes make it worthwhile for clients to pay for noncommoditized legal services. Even if the machine intelligence provides very good services, mixing in human intelligence may assure the best possible result. Accordingly, we may see an even more bimodal distribution of legal salaries, perhaps with a smaller group of even more highly compensated lawyers.
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> The overall effect of the machine invasion thus will be quite mixed for lawyers, but particularly difficult for nonspecialized lawyers of average or worse than average ability. For consumers at every level, the progress of machine intelligence is excellent news, offering lower prices and more transparency. It is especially good for the underserved middle class and even the poor who are more likely to access legal services at prices they can afford.[44]

The fault line between the skeptics and optimists consists of more than just their predictions about the likely course of development for AI. Indeed, faith in the technical competencies of artificial intelligence is, significantly, bound up in a normative judgment about the relative merits of automation over the legal profession. Frank Pasquale and Glynn Cashwell have noted that optimism regarding the future possibilities for AI is linked to a critique of the legal profession with clear libertarian overtones in McGinnis' work.[45] According to this reading of McGinnis' work, lawyers have benefitted at the expense of entrepreneurs, creating demand for their services by making the law needlessly complex.[46] Richard Susskind also argues that automation presents the only real possibility for making legal advice "affordable" for everyone.[47] For Susskind, "liberalization," or deregulation of the profession with an eye toward diminishing the lawyers' monopoly over providing legal advice and representation are viewed as developments that, combined with AI, will ultimately accrue to the

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44. John O. McGinnis & Russell G. Pearce, *The Great Disruption: How Machine Intelligence Will Transform the Role of Lawyers in the Delivery of Legal Services*, 82 FORDHAM L. REV. 3041, 3054-55 (2014) (citations omitted).

45. *See* Frank Pasquale & Glynn Cashwell, *Four Futures of Legal Automation*, 63 UCLA L. REV. DISCOURSE 26, 32 (2015) (discussing the libertarian views of futurist John O. McGinnis and how they related to his view of automation as a positive development).

46. *Id.*

47. RICHARD SUSSKIND, TOMORROWS LAWYERS: AN INTRODUCTION TO YOUR FUTURE 162 (2013) [hereinafter TOMORROWS LAWYERS]. *See also* SUSSKIND & SUSSKIND, *supra* note 43, at 2.

benefit of clients.[48] At the same time, Susskind suspects the legal profession of preserving the needless complexity of the law for its own benefit, implying the need for deregulation of the law as a whole.[49] Thus, in these accounts of the potentiality for AI to replace lawyers, there is an argument for changing the normative baseline provided by the law itself and standards of professional ethics, in order to create a favorable environment for automation to flourish.

III. PROFESSIONALS, PROLETARIANIZATION, AND AUTOMATION

The predictions about the future of automation described in the previous section are bound up in two distinct normative views of the legal profession. In the position I have called "AI skepticism," we have seen a defense of the idea that norms adopted by the legal profession to police its boundaries and regulate the conduct of its members in fact function for the good of clients and society at large. These commitments translate into a core of uniquely human activities and attributes—creativity, zeal, and orientation toward justice—that are incapable of being adequately assumed by a technological surrogate. Contrary to this view, AI optimists posit a critique of professionalism as, first and foremost, a strategy for protecting the economic interests of members of the profession—a view which pits the interests of lawyers against the rest of society because it keeps the costs of legal services needlessly high and/or the law itself needlessly complex. Optimism regarding the capabilities of AI combines with this critique of professionalism to argue in favor of a liberalized, highly-automated future for legal services.[50]

In this section, I will make the case that these theories present at best a partial account that excludes the perspective on technological development and in particular automation as a locus of class struggle. While the libertarian critique of the legal profession contains important insights about the nature of professionalism that should not be dismissed out of hand, it ignores this dimension of automation in favor of focusing on what it imagines to be the only salient conflict: that which exists between well-paid lawyers and the clients who struggle to afford legal services. While I agree with the AI-optimists that professional ideology should not be taken at face value, it often disguises another, more complex, set of conflicts than they commonly suppose.

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48. TOMORROWS LAWYERS, *supra* note 47, at 9.

49. LAWYERS, *supra* note 47, at 163. *See also* Pasquale & Cashwell, *supra* note 45, at 32-33.

50. Pasquale & Cashwell, *supra* note 45, at 33.

A. Theories of the "New Middle Class"

To see clearly why the conflict between professionalism and automation arises in this way at the current moment, it is first necessary to briefly visit the theoretical and historical background of the professions and professionalism. From a materialist perspective–which does not take professional ideology at face value, but attends to the particular social and economic interests of those within the professional group–professionals have had a complex and often contradictory position within the basic economic and class structure of capitalist society.

The growth of the "new middle class" appeared to be a reversal of the tendency toward class polarization that Marx had emphasized as a feature of capitalism.[51] The new middle class is usually described as consisting of salaried, white collar, or professional workers, as distinguished from the "old middle class" or petty bourgeoisie (typically small business owners). In *The Communist Manifesto*, Marx argued for the declining influence of the petty bourgeoisie due to the rise of large-scale capitalist enterprise, with the result of increasing polarization between the proletariat and capitalist classes.[52] The growth of the new middle class especially as a proportion of the population relative to the proletariat,[53] seems to run counter to this view, and has therefore been the subject of considerable debate in both Marxist and non-Marxist circles.[54]

Some orthodox Marxists disputed whether the middle class was really a separate class at all, or merely a group of relatively well-paid and well-treated workers within the existing working class.[55] Marxism traditionally defined classes with reference to the social relationships that arose under a given mode of production ("relations of production"). In broad strokes, the main classes in capitalist society were capitalists (bourgeoisie), who controlled the means of production through private ownership of capital, and the proletariat, or working class, which owned nothing except its own labor power, which it was obliged to sell in order to survive. From this perspective, the typical hallmarks that denoted middle class status–including salaried as opposed to hourly wage employment, educational attainment, and favorable working conditions away from the physically demanding and often dangerous manual labor–do not alter the central structural

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51. *See* Robert Carter, Capitalism, Class Conflict, and the New Middle Class 8–9 (1985).

52. Karl Marx, *The Communist Manifesto*, *in* The Marx-Engels Reader, 331, 343-44 (Robert C. Tucker ed., 1972).

53. Carter, *supra* note 51, at 16.

54. Val Burris, *The Discovery of the New Middle Classes*, *in* 15 Theory and Soc'y 317, 317 (1986).

55. *Id.* at 26.

features of the working class, their non-ownership of the means of production, and their resulting need to sell their labor power.[56]

Nearly the polar-opposite of theories that located the new middle class within the class of exploited workers were anti-Marxist and later neoconservative theories of the post-industrial society that imagined the new middle class at the brink of becoming a new ruling class.[57] By the 1950's, both state and industry power was being further channeled into rationalized technocratic planning, the wheelhouse of educated professionals.[58] For Post-Industrial theorists, this trend seemed to signal a substantive break with the social relations that had prevailed since the dawn of industrial capitalism, giving rise to a new form of the "post-industrial" society. For Daniel Bell and other sociologists in this vein, Marx's conception of the proletariat as a driving force of history was being made irrelevant by the interplay of these conditions.[59] Bell further posited that "knowledge" would replace labor time as the essential component in the creation of economic value.[60] According to these theorists, the rising importance of knowledge and information to economic production meant that the professional class' ability to command theoretical knowledge positioned it to replace capital owners as a new ruling class.[61]

Even those who continued to adhere to Marx's assessment of the relations of production and class composition in capitalist society often drew contradictory conclusions regarding the nature of the new middle class. In his survey of the sociological literature on the new middle class, John Urry attempted to summarize those attempts to define the "structural" characteristics of the middle class:

1. Derived from occupations of the old ruling class and structurally dependent on its authority, the middle class is an extension of the capitalist ruling class;
2. As non-owners of the means of production, the middle class is closer to the working class (albeit with vestiges of false consciousness derived from its favored position over other segments of the working class);
3. The middle class is actually divided into two classes: "bureaucrats with ruling class authority, and white collar workers with a proletarian class situation"; and

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56. *See* CARTER, *supra* note 51, at 17.

57. *See* Randy Martin, *Transforming Classes: What has Become of the Professional Managerial Class?*, *in* SOCIALIST REGISTER 250 (2015); Burris, *supra* note 54, at 25.

58. *See* DANIEL BELL, THE COMING OF POST-INDUSTRIAL SOCIETY 359 (1976 ed.).

59. *Id.* at 125.

60. *Id.* at xiv.

61. *Id.* at 344.

4. The middle class occupies an "ambivalent situation" which straddles a "proletarian market situation" but a "bourgeois work situation."[62]

This schematization highlights some of the complexity involved with attempting to pin down the structural characteristics of the new middle class, as it quickly becomes evident that even focusing narrowly on the legal profession, some members of the profession may be accurately described using one or more of these theories while others cannot. Only the very few considered to be at the top of the legal profession's hierarchies—such as partners in large law firms—appear to serve both as ideological emissaries of ruling class authority while retaining significant control over management decisions and work process, or "means and ends" of work afforded by ownership of the firm. On the other hand, a solo practioner retains control over the "means of production" by running his own office and perhaps employing others as wage laborers, thereby retaining control over the clients, practice areas, and time devoted to working on each case. He nonetheless lacks either the appearance or fact of exercising "ruling class" authority, perhaps consigning him to the "bourgeois work situation" but "proletarian market position" described in theory (4). For many others—from line attorney at the public defender or legal aid agency, to associates at law firms large and small, to the temporary "contract" attorney hired to perform piecework in the course of specific litigation, there has been some degree of bureaucratization of management, and a concomitant loss of control over work conditions.

Harry Braverman, in his work on *Labor and Monopoly Capital* summed up the difficulty of analyzing the new middle class:

> The complexities of the class structure of pre-monopoly capitalism arose from the fact that so large a proportion of the working population, being neither employed by capital nor itself employing labor to any significant extent, fell outside the capital-labor polarity. The complexity of the class structure of modern monopoly capitalism arises from the very opposite consideration: namely that almost all of the population has been transformed into employees of capital. Almost every working association with the modern corporation, or with its imitative offshoots in governmental or so-called nonprofit organizations, is given the form of the purchase and sale of labor power.[63]

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62. John Urry, *Towards a Structural Theory of the Middle Class*, 16 ACTA SOCIOLOGICA 175, 180–81 (1973).

63. HARRY BRAVERMAN, LABOR AND MONOPOLY CAPITAL: THE DEGRADATION OF WORK IN THE TWENTIETH CENTURY 404 (1974).

In this sense, even those managers fairly high up in the corporate hierarchy who are straightforwardly charged with carrying out the will of the capital ownership sell their labor power and therefore possesses some of the structural characteristics of a worker. Other contrary developments subsequent to Braverman's time have still further complicated this picture. For example, the financialization of the economy in the last decades of the 20th century, coupled with responsibilization of individuals to manage financial risk, has produced a system in which a large number of workers take part in capital ownership through the spread of "defined contribution" retirement plans, educational savings plans, etc.[64] This has had the simultaneous effect both of distributing workers' wealth upwards (through management fees extracted by all-but-mandatory stock ownership) and creating a community of interest between workers that depended on the stock market to provide for their long-term security.[65]

1. Proletarianization and Automation

A second topic of considerable importance within the study of the professions emphasizes the social processes of professionalization, deprofessionalization, and proletarianization. A summary of the characteristics of professions by Rajendra Pandey identified the professions as having (in varying degrees) "(1) a body of abstract knowledge, (2) service orientation, (3) professional authority, (4) community sanction, (5) professional-client relationship, (6) code of ethics, and (7) a professional culture" which amount to a series of strategies which allowed for the creation of a "protected, or institutional, market" for professionals' services.[66] These strategies permit members of the professions to escape some of the constraints imposed on the working class by capitalist relations of production, and thus retain a degree of control over the labor process and independence from capital.[67] Focusing on professionalization as a process emphasizes that professions do not exist at a completely stable point of equilibrium, even amongst occupations such as law and medicine that have been highly successful in pursuing these strategies.

A further observation, which took on central importance in the debate over the new middle class and professional labor following the publication of *Labor and Monopoly Capital*, is that even as professionals pursue advantages such as higher wages and control over work

64. *See* James W. Russell, *The 401(k) Retirement Crisis, Capital, and Neoliberal Ideology*, 18 RACE, GENDER & CLASS 284, 285 (2011).

65. *Id.*

66. Rajendra Pandey, *Whither Professionalism?,* 34 SOCIO. BULLETIN 1, 8-9 (1986).

67. *See* Magali Sarfatti Larson, *Professionalism: Rise and Fall*, 9 INT'L J. OF HEALTH SERVS. 607, 609 (1979).

conditions through professionalization, they may also be subject to contrary processes of "proletarianization."[68] Braverman's labor process theory drew on Marx's explanation of the "subsumption" of labor into the capitalist mode of production. Marx held that capital is created through the appropriation of "surplus value"—the value created by labor beyond what is required for subsistence.[69] According to Marx's explanation of how the capitalist mode of production comes into being, in the initial stage of capitalist production, or "manufacture," through control over the "means of production" (the physical items required for production), capitalists coordinate the work of many laborers in the production of commodities by breaking the production process into its component parts and assigning those parts to different individuals.[70] The decomposition of skilled craft work into less-skilled component pieces enhances the capitalist's ability to extract surplus value, but this ability is limited by the production process' linkages to the past and continued dependency on skilled labor.[71] Elsewhere, Marx explains that what is occurring at this stage is merely the "formal subsumption" of an "existing labor process" (e.g., handicraft labor).[72] At this stage, although the worker is now dependent on wages for his means of subsistence and has ceded control over the end product of his work, the capitalist's ability to extract surplus value is counterbalanced by the worker's unique contributions to the creation of the commodity, such as strength and technical skill.[73]

At the second stage of capitalist development, "real subsumption" of labor takes place which changes the nature of the production process, including the development of technology specific to the requirements of the capitalist mode of production.[74] Capital, in its drive to appropriate surplus value, necessarily runs up against the limits of human endurance and time in the extension of the working day ("absolute surplus value"); in order to continue to accumulate, it must turn to the alteration of the labor process itself.[75] Marx calls this "relative surplus value," or the increase in surplus value that is realized by increasing productivity within a given period of labor time.[76] By and

68. *See* Magali Sarfatti Larson, *Proletarianization and Educated Labor*, 9 THEORY AND SOC'Y 131 (1980).

69. KARL MARX, CAPITAL VOL. 1 208 (Frederick Engels ed., Samuel Moore & Edward Aveling trans., International Publishers 1967) (1867).

70. *Id*. at 361.

71. *See id.* at 367.

72. 34 KARL MARX & FREDERICK ENGELS, COLLECTED WORKS 424-42 (Ben Fowkes trans., 1994).

73. Larson, *supra* note 68, at 134.

74. MARX & ENGELS, *supra* note 72, at 428.

75. MARX, *supra* note 69, at 315.

76. MARX, *supra* note 69, at 315.

large, the realization of relative surplus value is made possible by interposing technological innovation and altering the nature of the work performed in the production of commodities.[77] At the same time that machines permit the appropriation of relative surplus value, machine production also reinforces the ability to appropriate absolute surplus value: disciplining refractory labor by taking control over more of the labor process, transferring the specialized motions of craft workers to machines that may be operated by workers that are more or less interchangeable—both with one another and with the "industrial reserve army" of unemployed laborers.[78]

Marx's view of technological innovation runs contrary to a commonly held contemporary view of technology as a neutral tool that may be used for either good or ill, but follows its own course of development through an objective process of scientific discovery. In Marx's account, the specific form taken by technological innovation reflects the underlying social relations of the capitalist mode of production:

> Like every other increase in the productiveness of labour, machinery is intended to cheapen commodities, and, by shortening that portion of the working-day, in which the labourer works for himself, to lengthen the other portion that he gives, without an equivalent, to the capitalist. In short, it is a means for producing surplus-value.[79]

Moreover, the degree to which mechanization is adopted is determined not by a linear unfolding of stages of technological advancement but to the underlying "law" of maximizing capital's extraction of surplus value.

Some of the sociologists who studied the growth of the professions in the 20th century saw an analogy between the loss of control over the labor process taking place among contemporary professional workers and the fate of the skilled craft workers described by Marx in *Capital*. Each group had historically maintained its status in society through monopolization of a specialized domain of knowledge.[80] Following the industrial revolution, hand craft work was more quickly subsumed and standardized within the machinic processes of the factory, while the "mental" labor associated with established professions appeared to be much more resistant to automation and standardization. The "proletarianization of the professional" was regarded as a process primarily associated with loss of autonomy resulting from employment in large scale bureaucracies and the resulting acceptance of

77. *See* MARX, *supra* note 69, at 403.
78. *See* MARX, *supra* note 69, at 636.
79. MARX, *supra* note 69, at 371.
80. *See* Pandey, *supra* note 66, at 25.

a loss of control over the "ends" or "social purposes" of their work.[81] Derber called this process "ideological" proletarianization, which he argued was an implicit first step in the Marx's account of the subsumption of skilled craft labor into manufacture.[82] The second step, which Derber called "technical proletarianization," involved the "expropriation of knowledge" itself:

> The lack of control over the process of the work itself, (i.e., the means) incurred whenever management subjects its workers to a technical plan of production and/or a rhythm or pace of work which they have no voice in creating . . .
>
> . . . .
>
> Management assumed as its own perogative [sic] the conceptualization and planning of the work process itself, standardizing and routinizing as fully as possible all work procedures. By imposing its own detailed plan of the labor process, management stripped from its workers any remaining countervailing technical powers to oppose its interests. Simultaneously, it legitimated its own authority by depriving workers of a belief in their capacity to manage their own work.[83]

Derber's description of technical proletarianization is couched in terms of labor-management relation appropriate to the age of monopoly capitalism in which the management function had split off from the direct ownership of capital. However, his description of the "expropriation" of workers' knowledge by capital recalls the well-known passage of *Grundrisse* in which Marx described the conversion of workers' knowledge into fixed capital:

> In machinery, objectified labour itself appears not only in the form of product or of the product employed as means of labour, but in the form of the force of production itself. The development of the means of labour into machinery is not an accidental moment of capital, but is rather the historical reshaping of the traditional, inherited means of labour into a form adequate to capital. The accumulation of knowledge and of skill, of the general productive forces of the social brain, is thus absorbed into capital, as opposed to labour, and hence appears as an attribute of capital, and more specifically of fixed capital, in so far as it enters into the production process as a means of production proper.[84]

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81. Charles Derber, *Managing Professionals: Ideological Proletarianization and Post-Industrial Labor*, 12 THEORY AND SOC'Y 309, 390, 313 (1983).

82. *Id.* at 313.

83. *Id.* at 313, 315.

84. KARL MARX, THE GRUNDRISSE, 616 (Penguin Books ed., Martin Nicolaus trans., 2015) (1939) (ebook) (emphasis in original).

As with the later development of these ideas in *Capital*, machines are integral not only to Marx's account of how capital transforms the labor process through technological innovation directed at maximizing surplus value, but also provides an essential link within the ideological program of "legitimating [management's] authority" to control the labor process, by convincing workers that capital already possesses the knowledge and skill once controlled by the worker.

IV. AI AND TECHNICAL PROLETARIANIZATION OF THE LEGAL PROFESSION

The development of computer technology in the latter part of the 20th century, including "artificial intelligence" has facilitated what Derber referred to as the technical proletarianization of professions, including law. As early as 1989, Bruce Berman observed that artificial intelligence was becoming a central rhetorical trope in the course of the "Third Industrial Revolution," functioning both to build up the faith in technology-centered capitalism and undermine workers' confidence in traditional work processes and ways of knowing.[85] Stanley Aronowitz made the case unequivocal for viewing "computerization" as an assault on professionalism as a strategy that workers use to protect themselves:

> The loss of autonomy on the part of qualified labor extends, furthermore, to the professionals themselves, a process of proletarianization which is today taking place on a grand scale. As professionals have joined unions in greater numbers, capital has subordinated their labor to the point where "intellectual labor" itself is under attack. With the computerization of the workplace, routine tasks are transferred to the machine but the sphere of autonomy is simultaneously restricted except for the narrow layer of computer scientists and engineers responsible for devising the systems. Decision-making is increasingly confined to the choice of "commands" offered by machines, a series of multiple choice questions instead of the essay. Indeed, the very concept of a "program" presupposes a high degree of standardization of intellectual labor.[86]

A generation ago, legal scholars such as Richard Abel argued that ideological proletarianization was having a widespread impact on the practice of law even as the nature of intellectual labor employed in the practice of law permitted it to resist technical proletarianization. According to Abel, "legal ethics are obsessed with tactical issues: when is

85. Bruce Berman, *The Computer Metaphor: Bureaucratizing the Mind*, 1 SCI. AS CULTURE 7, 28-29 (1989).

86. Stanley Aronowitz, *Why Work?*, SOC. TEXT, Autumn 1985, at 19, 22.

it acceptable to conceal evidence, mislead the judge on a point of law, overbear an adversary?"[87] But an adaptation to partially proletarianized circumstances which lawyers "increasingly practice in and for large bureaucratic entities" and therefore "have less and less say about whom they serve," professional ethics "denies that the question of whom to represent raises any moral problems."[88] However, while accepting ideological proletarianization, Abel believed that lawyers were able to resist the latter stage of technical proletarianization in that professionalism constitutes a response to the "unavoidable uncertainty of applying general theoretical knowledge to unique practical problems," the difficult-to-automate combination of expert.[89]

These beliefs about the uniqueness of professional judgment, requiring professional workers to exercise autonomous control over the means (if not the ends) of work, is precisely what is being brought under pressure in contemporary discussions of artificial intelligence. While AI skeptics wish to preserve the status and uniquely human nature of professional judgment, optimists have set their sights on transforming the relevant categories of services reserved for professionals.

One consequence of the view that law should adapt itself to new technologies, instead of the other way around, is that the pace and degree to which new technologies are adopted is not necessarily determined with reference to set benchmarks for technical competence in accomplishing pre-determined tasks. Rather, adoption of new technologies and their ability to be used as a replacement for human workers reflects a struggle for social dominance over the category of legal services.

The skeptical position towards AI, as described in Part II(a) above, evinces a healthy degree of distrust regarding the more grandiose claims made by proponents of AI. However, it does so at the expense of underestimating the long historical precedent of how automating technologies have been used to displace skilled human workers. As even skeptics are forced to concede, there is already a widely recognized example for AI inducing profound change in the structure of the profession in the form of TAR. The process of informalizing the market for "document review" has culminated in the adoption of natural language processing ("NLP")-based technology making it possible to displace all but a few of the workers still needed to supervise the program's functioning.[90] As described above, there is

87. Richard L. Abel, *Taking Professionalism Seriously*, ANN. SURV. AM. L. 41, 56 (1989).
88. *Id.* at 55–56.
89. *Id.* at 55.
90. Remus & Levy, *supra* note 22, at 516.

nothing fundamentally new about the process of replacing a number of highly trained, well-paid, and skilled workers with automated processes. The drive to maximize the extraction of surplus value, by extending capital's control over the labor process, is baked into the very design of technological innovation.[91]

The optimistic vision of McGinnis et al. avoids the untenable claim that there will be no significant change in lawyers' protected market for legal services resulting from automation. However, it is unclear what beyond wishful thinking forms the basis of the often-stated belief that it is mainly the drudge work—rote, repetitive, uncreative—that will be automated. Certainly, it is the ambition of AI developers to replace most, if not all, of the "core tasks" of human cognition with machinic processes. Jan Sowa sets out the pessimistic version of the optimists' scenario for the future of legal work, in which it is the undesirable work—dirty, physically exhausting, and intellectually boring—which proves most resistant to automation:

> The abovementioned paradox that machines do well what we do badly and vice versa is going to eliminate, first, a lot of middle-tier jobs that require some cognitive skills, but not a lot of invention: routine medical advice, simple engineering, basic legal advice, secretarial jobs or most of what is still called journalism, even if as a matter of fact it is just cutting-and-pasting with a little bit of translating from foreign news outlets. As a result, a lot of middle-class, still relatively well-paid jobs are going to disappear and low-paying, low-skills job[s] will proliferate: you will not be able to practice in a law firm, because junior legal advice will get automated. This will enable the owner of the law firm to become even wealthier, so instead he may buy a stable of expensive, luxury horses. As machines will perform rather poorly in looking after such particular animals, you will have a chance for that position.[92]

While it may be tempting to dismiss this scenario as dystopian fantasy, it has the virtue of being compatible with a realistic assessment of the functional role that automation has historically played within capitalism. The purpose of animating capital's drive to develop new technology is that it advances the bottom line of surplus value extraction, regardless of whether the work performed is manual or white-collar labor.[93]

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91. *See supra* note 79 and accompanying text; DYER WITHEFORD ET AL., *supra* note 11, at 149.

92. Jan Sowa, *Do Algorithms Dream of Social Strike? Review of Antonio Negri and Michael Hardt's Assembly*, 27 PRAKTYKA TEORETCCZNA 269, 276 (2018).

93. *See* DYER-WITHEFORD ET AL., *supra* note 11, at 78, 90.

If skeptics are correct that it is unrealistic to believe that AI will be able to meet the challenge of performing highly creative, complex human capacities, this overlooks a further feature of AI discourse. The human capacities thought to be essential are in fact highly flexible and subject to change, both due to the adoption of new technologies and by extra-technological means. Accounts of AI which focus on its newness and the near impossibility of programming strong AI inadvertently generate complacency surrounding the immutability of categories of uniquely human abilities versus activities that may be competently performed by machines. By emphasizing that strong AI is still many years off (if it is possible at all), skeptics tend not to appreciate the extent to which artificial intelligence and its attendant ambiguities serve as a flexible ideological construct that shapes the context in which people make judgments about which tasks must be done by humans and which tasks are subject to automation. These are not solely or even primarily technical questions; they are laden with normative judgments that may be re-shaped by human institutions, including the law itself. AI discourse in turn may shape the context in which these judgments are made; often priming us to meet the technology halfway in terms of regarding it as an acceptable substitute for human expertise, judgment, and emotion. In short, the answer to the frequently posed question "can a robot be a lawyer" is: yes, if we are willing to accept that it can.

An illustration of the basic flexibility of the categories regarded as "uniquely human" can be found by comparing relative rates of adoption of new technologies in different societies. For example, the use of robots for affective labor such as elder care is already gaining acceptance in Japan, in defiance of the common presupposition among AI skeptics that jobs which require human emotional capacities such as empathy are among the most difficult to automate.[94] The public's relatively easy acceptance of robots to perform these functions is necessitated by a sharp generational shift and resulting labor shortage, and has been promoted through diffusion of the idea in Japanese popular culture.[95]

There is evidence that AI capital is already engaged in more aggressive measures directed at shifting the ideological context necessary for broad societal acceptance of AI. For example, automobile manufacturers have been instrumental in pushing laws penalizing pedestrians for erratic behavior.[96] Unpredictable pedestrian behavior

94. *See* DYER-WITHEFORD ET AL., *supra* note 11, at 95.

95. *See* DYER-WITHEFORD ET AL., *supra* note 11, at 95.

96. Jordan Fraade, *Who's Afraid of the "Petextrian"?*, THE BAFFLER (Jan. 23, 2018), https://thebaffler.com/latest/whos-afraid-petextrian-fraade.

is an unresolved technical problem for self-driving vehicle technologies,[97] and a series of high-profile accidents have frustrated widespread adoption of self-driving vehicle technology.[98] Changing the laws to shift responsibility onto the pedestrian to behave in a predictable manner, in turn shapes the social apprehension of who was at fault when an accident occurs (here, the pedestrian rather than the vehicle). Shifting responsibility to pedestrians to keep themselves safe changes the normative baseline in a way that converts the unresolved technical problem of programming self-driving vehicles for pedestrian safety to a problem of unacceptable pedestrian behavior, thus changing the circumstances in which we make the judgment about whether driving is an automatable activity.

The fact that legal background shapes the context in which technologies are regarded as acceptable replacements for human activity seems to be grasped intuitively by the proponents of automation. They stress the need for clear, simple legal standards and procedures, and do so in the interest of furthering the range of activities susceptible to automation.[99] In other words, this is an argument that the law must accommodate itself to the imperative of automation rather than what is frequently supposed as the reverse: that automation accommodate itself to serving predetermined human values enshrined in law.

The process by which a limited technical achievement forces humans to accommodate it (rather than the other way around) can be seen in an analysis of how machine learning algorithms are shaping legal research. Earlier computer assisted legal research systems tended to require some specialized knowledge of Boolean operators, commands, or tools such as the headnote and digest system in Westlaw.[100] As natural language processing has become more sophisticated, the interfaces for databases such as LexisNexis and Westlaw have encouraged users to just start typing in a search box, and is coming up with ever more sophisticated ways of directing their queries.[101] While the ostensible reason for the change is to make the systems more comfortable to use for students accustomed to keyword searching by a lifetime of free text searching on search engines like Google,

97. Ian Bogost, *Can You Sue a Robocar?*, THE ATLANTIC (Mar. 20, 2018), https://www.theatlantic.com/technology/archive/2018/03/can-you-sue-a-robocar/556007/.

98. DYER-WITHEFORD ET AL., *supra* note 11, at 82.

99. *See supra* notes 45–49 and accompanying text.

100. John R. Johnson & Jo McDermott, *Days of Miracle and Wonder: A Retrospective and Future Look at Computer-Assisted Legal Research*, 19 W. ST. U. L. REV. 525, 531 (1992).

101. Paul D. Callister, *Law, Artificial Intelligence, and Natural Language Processing: A Funny Thing Happened on the Way to My Search Results*, 112 L. LIBR. J. 161, 168–69 (2020).

the fact that the systems are now forcefully suggesting that all searches can be successfully conducted in this low-skill mode primes lawyers to think of their skill as researchers as largely superfluous and replaceable by technology. In this process we see a direct illustration of Derber's observation that undermining workers' belief in their ability to direct their own work as one of the hallmarks of technical proletarianization.[102]

The development of research tools which incorporate natural language processing also reflects the subtle transfer of the worker's knowledge (here, judgment about the relevance of certain cases to a natural language query, as developed through experience and training) to a machine which can be operated by workers who possess far less skill. Natural language processing, like other technologies that come under the broader umbrella of "supervised" machine learning, only works through a high volume of data, created through the anonymized, devalued activities of human laborers required to generate, clean, test, and audit outputs.[103] Much of this labor is either (1) unpaid and thus generally unrecognized as labor, although it creates value (e.g., users who generate data through clicks on Facebook or Google searches);[104] or (2) informalized, precarious, or "gig" labor (e.g., Amazon's Mechanical Turk which uses piece workers to fill orders for large data sets from its clientele).[105] The Mechanical Turk-esque nature of the automated legal research is reflected in the following description of ROSS:

> 'With the support of Watson's cognitive computing and natural language processing capabilities, lawyers ask ROSS their research question in natural language, as they would a person, then ROSS reads through the law, gathers evidence, draws inferences and returns highly relevant, evidence-based candidate answers. ROSS also monitors the law around the clock to notify users of new court decisions that can affect a

102. Derber, *supra* note 81, at 315.

103. Gemma Newlands, *Lifting the Curtain: Strategic Visibility of Human Labour in AI-as-a-Service*, BIG DATA & SOC'Y, Jan. 2021, at 1.

104. Pasko Biliæ, *Search Algorithms, Hidden Labour and Information Control*, BIG DATA & SOC'Y, June 2016, at 1.

105. Paola Tubaro, Antonio A. Casilli & Marion Coville, *The Trainer, the Verifier, the Imitator: Three Ways in Which Human Platform Workers Support Artificial Intelligence*, BIG DATA & SOC'Y, Jan. 2020, at 2; Michael Buhrmester, Tracy Kwang & Samuel D. Gosling, *Amazon's Mechanical Turk: A New Source of Inexpensive, Yet High-Quality, Data*, 6 PERSP. ON PSYCH. SCI. 3 (2011). Amazon's Mechanical Turk takes its name from an 18th century chess-playing "automaton," later exposed as a hoax, which actually worked by hiding a human chess player inside. The Mechanical Turk therefore provides a surprisingly self-aware metaphor for how much contemporary "Artificial Intelligence" actually operates by hiding the human hand required to make it work.

> case. The program continually learns from the lawyers who use it to bring back better results each time.'[106]

Part of ROSS's learning process involves allowing users to upvote and downvote excerpts based on the robot's interpretation of the question. "Every time it answers a question, ROSS asks for feedback on its performance. Over time . . . ROSS's answers become more representative of the answers you would have gotten from the human professionals themselves. This is one of the primary features of all Watson progeny.[107]

This description amounts to a detailed account of how the real subsumption of labor is taking place through a program which incorporates machine learning. The process by which ROSS "learns" to accurately answer research questions is through its ability to appropriate the specialist knowledge of legal researchers who use the platform. The more lawyers use machine learning tools like ROSS to answer research questions and offer corrections, the more robust its data set about the potential answers to problems and the more reliable its answers become. The program requires the labor of those who are able to judge the relevancy of search results it produces, but it is able to appropriate this labor by harvesting it from users' interactions with the system. It then feeds these answers back to other users of the system, leaving the impression that the knowledge was always "known" by the program itself, rather than the living minds of the past workers who used it. While the specific form is new, the underlying phenomenon is as old as capital's use of machinery: "the specific mode of working here appears directly as becoming transferred from the worker to capital in the form of the machine, and his own labour capacity devalued thereby."[108]

V. WHY DOES IT MATTER?

The materialist view of professionalism stresses that professional status functions to protect selected groups of workers from exploitation in the employment relationship. However, unlike trade unionism, which gains power as more workers join unions, professionalism is a strategy that protects the profession's members through exclusion. The profession reassures employers that its members deserve better working conditions—higher pay, shorter hours, more discretion over work activities—by dint of their difference from other workers,

106. Baker, *supra* note 42, at 15 (*quoting ROSS Intelligence Announces Partnershipwith BakerHostetler*, PR NEWSWIRE (May 5, 2016), http://www.prnewswire.com/news-releases/ross-intelligence-announces-partnership-with-bakerhostetler-300264039.html [https://perma.cc/S6TG-FVF9].)

107. Baker, *supra* note 42, at 15 (citations omitted).

108. MARX, *supra* note 84, at 623.

whether it be the possession of educational credentials, public service commitment, or some other dimension of professional ideology.

In one regard then, the materialist view holds something in common with libertarian AI advocates: it does not take professionalism at face value as espousing transcendent human values, but regards professionalism as an ideology advancing the interests of a temporally constrained, historically contingent group of people. AI advocates even couch their challenge in a left-ish sounding language of the potential for automation to bring about democratization, demystification, and empowerment of low-income clients who were formerly at the mercy of an elitist profession.[109]

However, the libertarian critique of professionalism focuses solely on how professionals' interests may diverge from those outside the profession, and as such commits much the same error as AI-skeptical proponents of the legal profession in supposing that professionals themselves possess a single unitary interest. As Richard Abel observed, one of the reasons that professional ideology is suspect is its ability to obscure questions about the profession's role in furthering the interests of the powerful, squashing all ethical questions into questions of how lawyers operate rather than who and what interests they serve.[110] The unifying nature of this inquiry also obscures questions about how the benefits of professional identity have been unevenly distributed, while the burdens of proletarianization are coming for different segments of the profession at different rates. In even the most radical scenarios for the future of legal AI, those at the top of the profession have little to fear. Those who have traditionally performed the greatest service to the ruling class, sitting atop the hierarchies of large law firms or in the upper echelons of government service, may continue to enjoy the benefits of professional status while taking advantage of the new technology to reduce labor costs.[111]

By encouraging the profession to abandon professional ideology and accommodate itself to technology, AI optimists (perhaps intentionally) ignore the even more powerful authority of capital, and its ability to direct the development of and ultimate control over the ends to which new technology is directed.[112] While justice orientation, creativity, and empathy are widely believed by AI skeptics to be impossible to automate, an ideological project to make these qualities irrelevant to the practice of law is already well underway, especially with regards to serving those currently underserved by the legal pro-

109. *See supra* notes 45–49 and accompanying text.
110. Abel, *supra* note 87, at 56.
111. *See* McGinnis & Pearce, *supra* note 44, at 3054.
112. DYER-WITHEFORD ET AL., *supra* note 11, at 149.

fession. AI admittedly needs standardization and simplification of the law itself in order to produce predictable enough results to be a viable alternative to human labor.[113] This is a common theme in the AI optimist literature which imagines the "democratization" of law through reduction of labor costs associated with legal advice.[114] Automation is frequently imagined as a solution to the "problem" of providing legal services for low-income clients, as reflected in this account of a law school clinic devoted to the creation of automated legal forms for pro se litigants:

> Law schools are not known for emphasizing creativity and innovation in their students. But it is clear that in order for students to compete and succeed in this rapidly evolving legal environment, they will need to not only understand these technologies but also develop innovative content for future technologies. For example, students from Brigham Young University Law School developed an application called SoloSuit to assist those who need to respond to a complaint when being sued over a past debt. Students identified a particular legal problem, such as violations of consumer protection laws; they identified a need to simplify and streamline the legal process when responding to or issuing a formal complaint for those who cannot afford legal services. Law students should be asking themselves, what is the best way to harness the power of AI to make these legal processes easier on themselves and easier on the client? By developing new applications for AI, those who initially could not afford the services of a lawyer will now be afforded equal treatment under the law. Imagine the amount of forms and paperwork currently filled out at legal aid offices throughout the country that could be eliminated by creating "apps" that would allow clients to fill in their information and generate documents that could easily be reviewed and edited by lawyers to file in court. If law students are taught to be comfortable with such AI technology, future innovations such as SoloSuit and similar software will become commonplace.[115]

This account picks up on the trend in recent years, for "Access to Justice" to be reimagined as a technological response to a crisis of pro se litigation.[116] However, as much as technologists tout creativity and innovation, Access to Justice as technology reflects a failure of the political imagination of the legal profession and its willingness to ingest

113. *See supra* notes 45–49 and accompanying text.
114. *Id.*
115. Reid, *supra* note 15, at 483–84 (citations omitted).
116. *See* Rebecca Kunkel, *Rationing Justice in the 21st Century: Technocracy and Technology in the Access to Justice Movement*, 18 U. MD. L.J. RACE, RELIGION, GENDER, AND CLASS 366, 380–382 (2018).

wholesale the pieties and mystifications of neoliberal austerity politics.[117] Where there was once space to view legal aid service as a vehicle of transformative social change, it is now more often conceptualized as rote work that should be automated out of existence (albeit with the remaining necessity of incorporating the relatively low-skilled, hidden, and unpaid labor of students).

VI. CONCLUSION

Whether one conceives of it as a result of false consciousness or a genuine divergence of class interests, there can be little doubt that the legal profession has at best been an inconstant friend to the working class. All too often, lawyers and other professionals have been too easily convinced by the meritocratic ideology of neoliberal capitalism to be able to get past a well-meaning but ultimately reactionary belief in their own right, derived from educational attainment and career success, to direct the course of social development.

What the understanding of process of proletarianization offers to professionals is a chance to cut through these false ideologies that have been a tempting distraction for those with professional training from advancing a true politics of solidarity with the working class. We should not be drawn to "roll back the wheel of history"[118] and double down on "reprofessionalization" as an answer to the worsened work conditions and career prospects. The only way forward is to recognize the universality and inexorability of the downward pressure on all types of workers under capitalism, and consequently, the universality of the need for fighting it.

117. *Id.* at 388-89.
118. Marx, *supra* note 52, at 344.