

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
SCHOOL OF INFORMATION

David A. Jurgens, assistant professor of information, School of Information, and assistant professor of electrical engineering and computer science, College of Engineering, is recommended for promotion to associate professor of information, with tenure, School of Information, and associate professor of electrical engineering and computer science, without tenure, College of Engineering.

Academic Degrees:

Ph.D.	2014	University of California, Los Angeles
M.S.	2004	Washington University, St. Louis
B.A.	2004	Washington University, St. Louis

Professional Record:

2017 – present	Assistant Professor of Electrical Engineering and Computer Science, College of Engineering, University of Michigan
2017 – present	Assistant Professor of Information, School of Information, University of Michigan
2014 – 2015	Post-doctoral Scholar, Network Dynamics Lab, McGill University
2013 – 2014	Research Scientist, Linguistics Computing Laboratory, Sapienza University of Rome

Summary of Evaluation:

Teaching: Professor Jurgens is a successful instructor and mentor who has contributed broadly across the curricula of three degree programs at the School of Information. His approach to teaching combines three themes: (1) teaching students about current technology relevant for both research and industry; (2) socially responsible development and use of technology; and (3) adaptation of teaching materials and style to the different needs of undergraduate, masters, and Ph.D. students. Towards his goals, he integrates the use of class projects in his natural language processing (NLP) courses, which fits well with the fact that most of his teaching has been at the master's level. Professor Jurgens places a strong emphasis on DEI principles in his teaching that resonate well with the DEI-related themes of his research. His record in this area stands out in that he was selected for the Cultural Competency in Computing (3C) Fellows program on how to integrate DEI across all aspects of teaching and mentoring.

Professor Jurgens has made multiple important contributions to curriculum development in NLP and data science across three of the School of Information (UMSI)'s degree programs. In the Master of Science in Information (MSI) program, he created and taught a new course: SI 630: Natural Language Processing: Algorithms and People, which is now a core data science course in that degree. In the Ph.D. program, he created and taught a new doctoral seminar, SI 710: Computational Sociolinguistics, which he states was the first course offered anywhere in this new area. In the Master of Applied Data Science (MADS) program, he created and taught

SIADS 655: Applied Natural Language Processing (NLP), an important foundational course in that degree.

Professor Jurgens is a dedicated student advisor and mentor. To date, he has mentored 14 master's and 42 undergraduate researchers. With these students, he has co-authored eight papers in top NLP venues. He also led a team of 12 whose system was selected for the Amazon Alexa Prize Competition. Many of his students have since gone on to win notable awards and other achievements. He has also been involved in mentoring underrepresented graduate students through the Widening Natural Language Processing (WiNLP) program and the Association for Computational Linguistics. Professor Jurgens is also currently advising or co-advising 10 UMSI doctoral students: one as main advisor and nine co-advised. Professor Jurgens' current group is progressing as expected through the program. He has also served as dissertation committee co-chair for a Linguistics student who has graduated.

Research: Professor Jurgens' greatest research impact is his use of natural language processing (NLP) techniques to infer demographic, geographic, and social scientific measures from large-scale text sources. These resulting variables are used to answer important social science research questions, such as those concerning attitudes and discrimination. Within this research framework, Professor Jurgens has developed computational techniques that other researchers have adopted, thus producing significant impact on NLP and Computational Social Science (CSS) research practice.

In significant research contributions to diversity, equity, and inclusion (DEI), Professor Jurgens' work uses novel data sources to address attitudes and discrimination at a large scale. To illustrate, his paper, "Language from police body camera footage shows racial disparities in officer respect" used police body camera footage to evaluate the language that police officers used when speaking with community members. Similarly, Professor Jurgens' research on caste discrimination in India, "Smart, Responsible, and Upper Caste Only: Measuring Caste Attitudes through Large-Scale Analysis of Matrimonial Profiles," used previously unexplored data from a matrimonial website in India to examine sociodemographic factors associated with changing attitudes towards caste across generations and locations. Furthermore, Professor Jurgens' research has also addressed socially equitable language identification for underrepresented groups, ethnic bias in author mentions, and detecting "microaggressions" in online interactions.

Professor Jurgens' research has also made important methodological contributions to demographic and geographical inference from social media data, which is a critical issue in connecting computational social science to existing sociological and political science knowledge derived from traditional methods such as surveys. His work addresses these issues in several important ways. His rigorous work on demographic and locational inference has resulted in new methods, such as a multimodal, multilingual deep learning system for demographic stratification that leverages a cross-modal co-training technique.

Professor Jurgens develops innovative techniques to address established and novel NLP tasks (e.g., text similarity, quantifying intimacy, gender prediction, etc.). To support generalization, he has made a number of these techniques available as open-source software, including Gender-

Performr (predicting gender from usernames), and Equilid (socially equitable language identification), and Humanizr (identifying organizations and bots on social media).

Professor Jurgens brings a special combination of technical skills to a range of problems that is unique in many of his collaborations, which makes him sought after as a collaborator. In addition, Professor Jurgens has a significant record of research independence. For example, he led several funded projects as the sole principal investigator (PI) such as his prestigious National Science Foundation (NSF) CAREER and NSF Computer and Information Science and Engineering Research Initiation Initiative (CRII) grants. Professor Jurgens was also the lead PI on several collaborative extramural funding awards (with co-PI UMSI Associate Professor Daniel Romero on an NSF grant in 2020 and with co-PI College of Engineering Professor Rada Mihalcea on an LG AI grant). He has also served in co-PI roles in numerous extramural funding awards, including from the National Institutes of Health (NIH).

Since joining UMSI, Professor Jurgens has published 25 papers (citations as of January 2023: 4410, h-index: 33, per Google Scholar). Professor Jurgens has a Best Paper award at a top computational social science conference, the International Conference on Web and Social Media (ICWSM); received three best paper nominations; and was co-recipient of the aforementioned Cialdini Prize from the Society for Personality and Social Psychology and the Cozzarelli Prize in Behavioral and Social Sciences from the National Academy of Sciences). Professor Jurgens' main publication venues are recognized as top venues in the fields of NLP and CSS. These include the following journals and peer-reviewed computer science conference proceedings: *Proceedings of the AAAI International Conference on Web and Social Media (ICWSM)* (eight papers), *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)* (eight papers), *Findings of EMNLP* (two papers), *Proceedings of the Annual Meeting of the Association for Computational Linguistics (ACL)* (five papers), and *Proceedings of the Web Conference (WWW)* (three papers). Professor Jurgens also frequently publishes in other prestigious venues in related fields, such as the *Proceedings of National Academy of Sciences (PNAS)*.

Recent and Significant Publications:

- Jurgens, D., Kumar, S., Hoover, R., McFarland, D., & Jurafsky, D. (2018). Measuring the evolution of a scientific field through citation frames. *Transactions of the Association for Computational Linguistics*, 6, 391-406.
- Rajadesingan, A., Mahalingam, R., & Jurgens, D. (2019, July). Smart, responsible, and upper caste only: measuring caste attitudes through large-scale analysis of matrimonial profiles. In *Proceedings of the International AAAI Conference on Web and Social Media* (Vol. 13, pp. 393-404).
- Voigt, R., Camp, N.P., Prabhakaran, V., Hamilton, W.L., Hetey, R.C., Griffiths, C.M., Jurgens, D., Jurafsky, D. and Eberhardt, J.L., 2017. Language from police body camera footage shows racial disparities in officer respect. *Proceedings of the National Academy of Sciences*, 114(25), pp. 6521-6526.
- Zhu, J., & Jurgens, D. (2021). The structure of online social networks modulates the rate of lexical change. *Proceedings of the 2021 Annual Conference of the North American Chapter of the Association for Computational Linguistics*, pp. 1-8.

Wang, Z., Hale, S., Adelani, D. I., Grabowicz, P., Hartman, T., Flöck, F., & Jurgens, D. (2019, May). Demographic inference and representative population estimates from multilingual social media data. In *The World Wide Web Conference* (pp. 2056-2067).

Service: Professor Jurgens has a strong service record for a scholar at his career stage. At UMSI, he was a member of the Online Programs Committee and contributed to MADS curriculum development and he assisted with hiring lecturers for the MADS program. He was also elected by his faculty colleagues as the untenured member of the Dean's Advisory Committee (DAC). In this role, he was actively involved in providing feedback related to the design of UMSI's new building. Professor Jurgens also served on search committee for the Ford School for the Antiracist Racist Hiring Initiative: Racial Justice and Technology position (UMSI service assignment as part of cluster hire). His university-level contributions include his work as a faculty associate at the Michigan Institute for Data Science (MIDAS).

Professor Jurgens has been actively involved in the NLP and CSS scholarly communities where he has assumed leadership roles. He has been the tutorials chair (2022), sponsors chair (2019) and data chair (2017) for the International Conference on Social Media (ICWSM). He has also served as a senior program committee member for ICWSM (2016-19) and the Web Conference (2020). He was a co-organizer of the workshop series on NLP and CSS (six times, most recently in 2022). He has performed senior reviewing as an area chair for the Annual Meeting of the Association for Computational Linguistics (ACL) (2018-20) and the Conference on Empirical Methods in NLP (EMNLP) (2019). He also regularly reviews both for NLP field journals and for general interest journals, such as *Science* and *Nature*.

External Reviewers:

Reviewer A: “[Professor] Jurgens has distinguished himself as an internationally recognized researcher in the field of Computational Social Science.... My assessment of [Professor] Jurgens’s accomplishments is that he deserves an exclusive classification, and he will be a great asset to your department as a tenured faculty member.”

Reviewer B: “[Professor] Jurgens’ intellectual independence and leadership are exemplified by the grants that he has been awarded as a single PI from the NSF, including a prestigious CAREER grant. The grants he won in collaboration with colleagues, e.g., from NIH and also the NSF further substantiate his ability to collaborate successfully.”

Reviewer C: “To have received four different NSF awards before tenure (two as sole PI) is testament to the enthusiasm for [Professor Jurgens]’s research ideas in the larger research community.”

Reviewer D: “[Professor Jurgens] is a gem, an extraordinary scholar and a leader in making computational models for language more social and also more socially responsible. He has already had a huge impact in the field and his impact will only grow.”

Reviewer E: “...the [impact] of his work and the many service contributions to computational social science make him an outstanding candidate for tenure...”

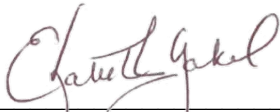
Reviewer F: “[Professor] Jurgens is a leading, internationally recognized scholar in the field of computational linguistics.”

Reviewer G: “In all respects, based on his research productivity, he appears to be operating at the level of intensity of a tenured professor.”

Reviewer H: “[Professor Jurgens] is one of the most important researchers in the world in the area of developing computational models that integrate social meaning and social contexts with sophisticated modern natural language processing algorithms.”

Summary of Recommendation:

Professor Jurgens’ accomplishments in the areas of teaching, research, and service meet and exceed promotion and tenure requirements. Therefore, with the support of the Promotion and Tenure Committee of the School of Information and the Executive Committee in the College of Engineering, we enthusiastically recommend David A. Jurgens for promotion to associate professor of information, with tenure, School of Information, and associate professor of electrical engineering and computer science, without tenure, College of Engineering.



Elizabeth Yakei

Interim Dean

C. Olivia Frost Collegiate Professor of Information
School of Information



Alec D. Gallimore, Ph.D.

Robert J. Vlasic Dean of Engineering
College of Engineering

May 2023