

# SAUMIK NARAYANAN

## PERSONAL INFORMATION

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WEBSITE: [saumikn.com](http://saumikn.com)  
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PERSONAL EMAIL: [saumik.narayanan@outlook.com](mailto:saumik.narayanan@outlook.com)

## EDUCATION

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- 2020 - CURRENT | **Washington University, St. Louis, MO**  
PhD in Computer Science  
Advisor: Dr. Chien-Ju Ho  
Coursework: Advanced Algorithms, Adversarial AI, Artificial Intelligence, Bayesian Methods in Machine Learning, Data Mining, Human-In-The-Loop Computation, Large-Scale Optimization, Machine Learning II
- 2020 - 2022 | **Washington University, St. Louis, MO**  
MS in Computer Science (Expected May 2022)  
*Graduate Certificate in Data Mining and Machine Learning*
- 2016 - 2019 | **University of Minnesota, Minneapolis, MN**  
BS in Computer Science, *magna cum laude*  
Thesis: "Modeling Network Formation in an Online Health Community"  
Advisor: Dr. Svetlana Yarosh  
Coursework: Artificial Intelligence 1 & 2, Algorithms and Data Structures, Applied Linear Algebra, Computational Linguistics, Computer Vision, Data Science, Machine Learning, Urban Analytics

## RESEARCH EXPERIENCE

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- 2021 - Current | **Washington University, St. Louis, MO**  
*PhD Student*  
Researching the area of Human-AI collaboration using chess as a model domain for our studies. Specifically, we are analyzing three topics. (1) Integrating personalized human behavior models into AI decision-making systems. (2) Understanding how human responses to AI advice varies by user expertise. (3) Using AI to design human educational curricula based on personalized human behavior models.
- 2019 - 2020 | **Smart Information Flow Technologies, Minneapolis, MN**  
*Associate Researcher*  
Implemented a Monte Carlo sampling module in HOMER to forecast potential conflicts between agents without communication. Worked on a framework to integrate the output of multiple modules in HOMER into a single Bayesian network for decision making.  
Joined the SCHNEIDER project. Evaluated the robustness of Bayesian network models. Extended the functionality of the SUNNY algorithm to compute conditional probabilities in real-time instead of static values.

- Jul - Dec 2019 | **Smart Information Flow Technologies**, Minneapolis, MN  
*Research Intern*  
 Joined the HOMER project, an operations management system built with the SHOP3 automated planner. Implemented new planning domains. Researched applications of explanation-based learning, plan diversity, and Monte Carlo methods.
- 2016 - 2019 | **GroupLens Research**, University of Minnesota  
*Student Researcher*  
 Worked on several research projects concerning the use of an Online Health Community. Topics of research included developing machine learning models to predict user death from writing samples, validating machine learning models on classifying patient journey types, and developing regression models predicting network formation and growth.
- Summer 2018 | **Civic Data Science REU**, Georgia Tech  
*Student Researcher*  
 Conducted feasibility studies on using low-cost air-quality sensors on mobile environmental data gathering units. Analyzed street-level pollution in Atlanta with respect to the potential of increased cycling infrastructure. Started preliminary data collection from eye-tracking sensors, used as a proxy for cyclist stress.

## INDUSTRY EXPERIENCE

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- Fall 2018 | **AMAZON**, Seattle, WA  
*Software Engineering Intern*  
 Created automated deployment system for processing Elastic Load Balancing upgrades on AWS Ec2 Instances. Completed project improved the time to deploy updates from several days to only few hours. Implemented the project using the AWS tools S3 and DynamoDB.
- Summer 2017 | **API OUTSOURCING**, Eagan, MN  
*Software Engineering Intern*  
 Developed automated solutions for data extraction and parsing of financial transactions, leading to a 14% increase in efficiency of successful extraction for stream of incoming documents. Worked on Cluster Analysis with both structured and unstructured data from sources like emails, PDFs, spreadsheets, and text.

## PUBLICATIONS

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\* denotes equal/alphabetical authorship

- Zachary Levonian, Marco Dow\*, Drew Richard Erikson\*, Sourijit Ghosh\*, Hannah Miller Hillberg\*, **Saumik Narayanan\***, Loren Terveen, Svetlana Yarosh. Patterns of Patient and Caregiver Mutual Support Connections in an Online Health Community. Conditionally accepted at CSCW 2020. <https://arxiv.org/abs/2007.16172>
- Zachary Levonian, Drew Richard Erikson\*, Wenqi Luo\*, **Saumik Narayanan\***, Sabirat Rubya\*, Praateek Vachher\*, Loren Terveen, and Svetlana Yarosh. 2020. Bridging Qualitative and Quantitative Methods for User Modeling: Tracing Cancer Patient Behavior in an Online Health Community. To appear in *Proceedings of the 14th International AAAI Conference on Web and Social Media - ICWSM, 2020*
- Haiwei Ma, C. Estelle Smith, Lu He, **Saumik Narayanan**, Robert A. Giaquinto, Roni Evans, Linda Hanson, and Svetlana Yarosh. 2017. Write for Life: Persisting in Online Health Communities

through Expressive Writing and Social Support. *Proc. ACM Hum.-Comput. Interact.* 1, CSCW, Article 73 (December 2017), 24 pages. DOI: <https://doi.org/10.1145/3134708>

## PRESENTATIONS

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\* denotes equal/alphabetical authorship

- Nic Alton\*, Saumik Narayanan\*, April Gadsby, Chris Le Dantec, Kari Watkins. Feasibility of Low-Cost Air Quality Sensors for Mobile Emissions Analysis. *2019 CARTEEH Transportation, Air Quality, and Health Symposium*, Austin, Texas

## AWARDS

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- NSF REU Undergraduate Research Fellowship (Spring 2019)
- NSF Civic Data Science REU (Summer 2018)
  - One of 9 nationally selected undergrads
- Undergraduate Research Opportunities Program, University of Minnesota (Fall 2017)

## LEADERSHIP EXPERIENCE

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Jul - Nov 2020	<b>Chief Organizer, States Chess Cup</b> Created a national online chess league for 32 states and hundreds of players from across the country to compete in a series of matches against each other.
2019 - 2020	<b>Board Member, Minnesota State Chess Association</b> Coordinating event schedules between multiple chess organizations based in Minnesota. Managing internal and external communication by implementing more effective communication tools such as Microsoft Teams. Developing fund and planning long-term real estate purchases.
2017 - 2018	<b>President, University of Minnesota Chess Club</b> Increased annual operations of club from under \$3,000 to over \$40,000 during term. Incorporated the Chess Club as a 501c3 nonprofit, bid to host international championships as well as other national-level tournaments, worked with regional sponsors and various sources of funding from University grants. Organized multiple events with over 100 players, including one multi-day event with over 250 attendees and the largest prize fund for a Minnesota tournament in 13 years.

## ONLINE COURSEWORK

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- **Stanford** Intro to Machine Learning
- **Fast.ai** Practical Deep Learning for Coders
- **Kaggle** Data Science Curriculum
- **CommonLounge** Hadoop and Big Data

## SKILLS

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**Languages** Python, Java, Lisp, Matlab, LaTeX, C, C++, R, OCaml, SQL, HTML  
**Tools** Git, Pandas, Pytorch, SKLearn, Tensorflow, Tableau, Regex, Hadoop