

SWAPNA SOMASUNDARAN

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SUMMARY

AI leader with experience in Natural Language Processing, Machine Learning, and AI. Heading a team of AI engineers and scientists. Leading high-impact agile, cross-functional, distributed teams for AI automation across the company's flagship products. Supervising the development of Generative AI technologies from foundations to operations. Creating and executing technology roadmaps with cross-divisional collaboration. Setting priority growth areas, hiring, and mentoring staff. Leading new innovations in AI, creating intellectual property, publishing in international conferences. Providing international AI thought leadership via invited panels.

EDUCATION

Ph.D. Computer Science, University of Pittsburgh, Pittsburgh, PA, USA

M.S.E. Computer Science, Johns Hopkins University, Baltimore, MD, USA

B.E. Electronics Engineering, Mumbai University, Mumbai, Maharashtra, India

EXPERIENCE

Director- NLP & Gen AI, Educational Testing Service, Princeton, NJ (2021-present)

HEAD OF NLP, GEN AI GROUP

- Heading an AI group comprising of researchers and engineers in Gen AI/NLP.
- Led the transformation and adoption of Generative AI in the division.
- Led the team through culture change to achieve agile product development focus.
- Set and executed on strategic priority growth areas (e.g. AI Fairness).
- Revamped recruiting to the strategic priorities of the division, anticipating growth areas and creating future staffing plans. Promoted remote team cohesion by weekly team activities.
- Served on company-wide promotion committee.

TECHNICAL LEADERSHIP

- Managed large (> 20 international staff) high-priority AI initiatives such as automation of ETS' flagship products using Generative AI, in-house NLP R&D, and AWS-based system development. Collaborated with business to create technical roadmaps. Engaged with stakeholders. Collaborated across divisions for operational delivery of automated test creation.
- Bootstrapped new NLP teams (e.g., Next Generation Writing Product) for creating prototypes in new growth spaces. Created roadmaps, led R&D team for implementation. Collaborated with product owner and a larger cross-functional team for creation of new product concepts. MVP launched in 9 months.
- Guided day-to-day R&D work and co-authored scientific publications and patents.

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AI LEADERSHIP

- Served on (invited) international conference panels, NSF panels, Women in AI panel, wrote blogs, and supported/mentored scientific publications to create an AI brand name for ETS. Served as area chair and other roles in top tier conferences.
- Supported senior leadership in evaluations of external collaborations/acquisitions and discussions with other Edtech companies, external government agencies for partnerships.
- Executive Sponsor for division-wide Responsible AI resource group.

Managing Senior Research Scientist, R&D, Educational Testing Service, Princeton, NJ (2017-2021)

MANAGEMENT AND LEADERSHIP

- Led a cross-functional team of NLP scientists, cognitive scientists, applied linguists, UXR, engineers and software developers to create multiple automation solutions for internal customers. The team (1) conducted state-of-the-art NLP research, (2) conducted user needs research, (3) designed, developed, and deployed software systems to create MVPs (4) Established university collaborations, (5) Communicated the results to stakeholders and ETS staff via seminars.
- Created research strategy and roadmap for NLP lab in Automated Content Generation.
- Led a task force comprising of senior leadership and scientists to redesign the scientist job family.
- Managed multi-year projects with stakeholders. Coordinated teams (team size from 2 to 30).
- Supervised direct reports to achieve their career growth. Mentored other ETS staff.

INTELLECTUAL LEADERSHIP, INDIVIDUAL CONTRIBUTION AND RESEARCH

- Implemented NLP methods for text extraction, triage systems, led creation of software tools for user.
- Ideated and established the area of narrative research at ETS. Built narrative scoring features for the scoring product.
- Conducted research in multiple NLP areas such as Discourse, Sentiment, and Narratives while building applications for Automated Writing Evaluation and Automated Content Generation.
- Authored publications and patents. Presented work in conferences and seminars.
- Provided intellectual leadership to the international NLP research community in the form of multiple (invited) area chair and organizing committee roles.

Research Scientist, R&D, Educational Testing Service, Princeton, NJ (2013-2017)

- Led research in multiple NLP areas such as Graph-methods, Discourse, Argumentation. Built new capabilities for scoring texts across multiple text genres, resulting in improving the ETS' flagship AI scoring engine.
- Provided technical expertise across various groups at ETS for responding to Request for Proposals (RFP). Served as NLP expert on an international research grants and initiatives.
- Acquired project funding as Principal Investigator (6 projects) or collaborator (3 projects).
- Co-led the "Text and Speech Systems" sub-initiative (multiple years). Monitored budgets, managed proposals, and advised project leads for 5 projects in FY2015 and 8 projects in FY 2016.
- Authored publications and patents. Disseminated research outcomes.

Research Scientist, Siemens Corporate Research, Princeton, NJ, USA (2010-2012)

- Research and Development: Led research in the areas of relationship mining and word spaces. Developed technologies for projects in domains such as fraud detection, personalized healthcare, patent invalidity search, and fleet monitoring.
- Project Acquisition and Management: Played leading and supporting roles in the acquisition of customer projects via prototype development, customer workshops, presentations, and discussions, and managed several customer projects ranging from small-scale prototype development to large-scale projects. Hired, trained, and supervised three software consultants.
- Proposal Writing: Led the writing of government proposals.
- Mentoring: Advised student interns on research projects.
- University Collaborations: Led an internally funded collaboration with UC Berkeley. Represented Siemens on the advisory board for SALTS (Rutgers Laboratory for the Study of Applied Language Technology and Society).

TRAINING and SKILLS

MACHINE LEARNING: Generative AI, LLM prompting & fine-tuning, RAG, Fairness and Bias in AI, Deep learning, machine learning algorithms; graph algorithms.

MANAGEMENT: Rutgers mini MBA. Project Management Training.

PROFESSIONAL LEADERSHIP ACTIVITIES

- NSF review panel (2021 and 2023)
- Organizer TextGraphs Workshop (2010, 2017, 2018, 2019, 2020)
- Area Chair at AAAI (2021, 2022, 2024)
- Senior Area Chair for Sentiment Analysis and Argumentation Mining (ACL 2020)
- Workshop Chair (NAACL 2019)
- Area Chair for Sentiment Analysis and Argumentation Mining (ACL 2019)
- Area Chair for Sentiment Analysis and Argumentation Mining (NAACL 2018)
- Childcare Grant Co-ordinator (EMNLP 2018)
- Student Research Workshop Faculty Advisor (NAACL 2018)
- Area Chair for Sentiment Analysis and Argument Mining (COLING 2016)
- Handbook Chair (EMNLP 2016)
- Vice President of Women in Computer Science at University of Pittsburgh (WiCS) (2009-2010)
- Member of the editorial board of the Journal of Writing Analytics (2016-2022).
- Advisory: SALTS (Rutgers Laboratory for the Study of Applied Language Technology and Society).

PUBLICATIONS AND PATENTS

Please refer to my Google Scholar page for the full list of ~50 publications (AAAI, ACL, EMNLP etc.) and granted patents: https://scholar.google.com/citations?hl=en&user=vt_ki6oAAAAJ

PANELS, TALKS AND PRESENTATIONS

- NAACL 2024 panel on effect of LLMs in education
- Panelist: Women in AI event in 2022

- Panelist: Women in AI: *Lead by example* (hosted by ETS Canada)
- Multiple presentations to potential clients, ETS partners, Government agencies and management as subject matter expert or head of AI.
- Multiple research presentations within ETS (10+)
- Wrote multiple ETS-wide AI blogs on topics of automated scoring and content generation.
- Invited Talk: Discourse-level Opinion Analysis (2009). University of Maryland, College Park and at Indian Institute of Information Technology (IIIT), Hyderabad, India