Shashank Srikant

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Work

- **Independent consultant**   Bangalore, India
  Private, engineering consulting   August 2023 – present
  - I advise startups and organizations in designing and deploying products that use machine learning/AI, generative ML, program analysis techniques, and data analysis.
  - With over a decade of experience, I specialize in seamlessly integrating AI/ML into enterprise-grade software products. I have worked with Global 500 organizations such as Amazon, Microsoft, JD, and Tencent, where I integrated AI products into their workflows.

Education

- **Massachusetts Institute of Technology (MIT)**   Cambridge, MA, USA
  Ph.D. in Computer Science (CS) from the CS & AI Lab (CSAIL), EECS; **GPA**: 4.5/5   Aug 2017 - June 2023
  - **Thesis**: Understanding Computer Programs: Computational and Cognitive Perspectives
  - **Advisor**: Una-May O'Reilly ☐, Founder & Principal Investigator, Any-scale Learning For All (ALFA) lab
  - **Thesis committee**: Armando Solar-Lezama ☐, Ev Fedorenko ☐, Sijia Liu ☐, Una-May O'Reilly (chair)
  - **Minor**: Cognitive science, Dept. of Brain & Cognitive Sciences
  - **Courses**: **CS & Math:** Advanced NLP, Machine learning, Program analysis, Computer systems security, PL+AI graduate seminar at Harvard; **Cognition & linguistics:** The human brain, Cognitive science (graduate), Language acquisition
  - **Teaching assistant**: 6.C51 Modeling with Machine Learning: from algorithms to applications, Spring 2022; Instructors: Tommi Jaakkola, Regina Barzilay. Overall rating: 6.2/7. Student evaluations ☐
  - MIT EECS graduate admissions committee - student volunteer

- **National Institute of Technology (NIT)**   Kurukshetra, India
  B.Tech. in Information Technology; **CGPA:** 9.1/10   Aug 2007 – July 2011
  - **Research**: Transport4You (semi-finalists: SCORE at ICSE 2011 ☐), Suggestions4You (recommender system browser plugin), parallelization of weighted sequence comparison (as a Microsoft scholar at IIT Roorkee)
  - **Advisor**: Prof. Jitender Kumar Chhabra ☐
  - **Courses**: Probability & statistics, Compilers, Theory of computation, Advanced algorithms, Software engineering

Publications & Patents (detailed list ☐)

- [**SOAP 2023 at PLDI 2023**] RACEINJECTOR: *Injecting Races To Evaluate And Learn Dynamic Race Detection Algorithms*, Wang M, Srikant S., Samak M, O'Reilly UM

- [**Nature Human Behavior, 2023**] *Driving and suppressing the human language network using large language models*, Tuckute G., Sathe A., Srikant S., Taliaferro M., Wang M., Schrimpf M., Kay K., Fedorenko E.

- [**In progress**] *GOLI: Goal-Optimized Linguistic Stimuli for Psycholinguistics and Cognitive Neuroscience*, Srikant S., Tuckute G., Liu S., O'Reilly UM

- [**SANER 2023**] *CLAWSAT: Towards robust and accurate code models*, Jia* J., Srikant S.*, Liu S., O'Reilly UM et al.

- [**NeurIPS, 2022**] *Convergent representations of computer programs in human and artifical neural networks*, Srikant S.*, Lipkin B.*, Ivanova A., Fedorenko E., O'Reilly UM ☐

- [**IJCAI, 2021, Workshop**] *Can cognitive neuroscience inform neuro-symbolic models?* , Srikant S., O'Reilly UM ☐

- [**ICLR, 2021**] *Generating adversarial computer programs using optimized obfuscations*, Srikant S., Liu S., O'Reilly UM et al. ☐

- [**eLife, 2020**] *Comprehension of computer code relies primarily on domain-general executive resources*, Ivanova A., Srikant S., et al. ☐

- [**arXiv 2019**] *Dependency-based neural representations for classifying lines of computer programs*, Srikant S., Lesimple N., O'Reilly UM ☐

- [**CACM 2019**] *Skill evaluation*, Srikant S., Takhar R., Venugopal V., Aggarwal V. ☐

- [**LeGO 2018**] *On the application of Danskin's theorem to derivative-free minimax optimization*, Al-Dujaili A., Srikant S., Hemberg E., O'Reilly UM ☐

- [**SIGCSE 2017**] *Introducing data science to school kids*, Srikant S., Aggarwal V. ☐

- **[KDD 2016]** *Question independent grading using machine learning: The case of computer program grading*, Singh. G, <u>Srikant S.</u>, Aggarwal V. ⬀
- **[KDD 2014]** *A system to grade computer programming skills*, <u>Srikant S.</u>, Aggarwal V. ⬀
- **[IKDD CODS 2016]** *AMEO 2015: A dataset comprising AMCAT test scores, biodata details and employment outcomes of job seekers*, Aggarwal V., <u>Srikant S.</u>, Nisar H. ⬀
- **[IEEE S&P 2018, Workshop]** *Exploring the use of autoencoders for botnets traffic representation*, <u>Srikant S.</u>, Hemberg E., O'Reilly UM ⬀
- **[ICML 2015, Workshop]** *Learning models for personalized educational feedback and job selection*, Shashidhar V., <u>Srikant S.</u>, Aggarwal V. ⬀
- **[NIPS 2013, Workshop]** *Principles for using machine learning in the assessment of open response items: Programming assessment as a case study*, Aggarwal V., <u>Srikant S.</u>, Shashidhar V. ⬀
- **[indiaspend.org, 2016]** *Why Bihar can treat only 0.3% of malnourished children*, <u>Srikant S.</u>, Ojha N. ⬀
- **Patent**: *Extracting semantic features from computer programs*, Aggarwal V., Srikant S. *USPTO# 20160104392*
- **Patent**: *Method and system for grading a computer program*, Aggarwal V., Srikant S. *USPTO# 20160103754*

Work Experience

- **MuseDev Inc. (now Sonatype Inc.)** ⬀ virtual
  Research intern; Mentored by Stephen Magill ⬀ June 2021 – August 2021
  - Investigated the correlation of various metrics from static analysis tools to the presence of bugs and vulnerabilities in software repositories. This experience also helped me understand the market for commercial program analysis tools.

- **MIT-IBM Watson AI Lab** ⬀ virtual
  Research intern; Mentored by Sijia Liu ⬀ June 2020 – August 2020
  - Investigated robustness of extant ML models for computer programs. Devised an optimization formulation to attack such ML models, and showed lack of robustness.

- **.406 Ventures** ⬀ Boston, USA
  Student fellow, Class XI July 2019 – June 2021
  - A selective program which exposes students with entrepreneurial experience to workings of the venture capital industry.
  - Evaluated and assessed pitches from startups in the New England area in the verticals of healthcare and cybersecurity.

- **Seva Setu** ⬀ Patna, India
  Volunteer; Mentored by Nishant Ojha ⬀ July 2016 – June 2017
  - I was exposed to the realities of public healthcare and citizen-centric services in rural India. Led strategy, operations, fund-raising, and technology to ensure citizens availed maternity, disability, and child-related welfare schemes of the state and federal government.

- **Aspiring Minds (now SHL India)** ⬀ Gurgaon, India
  Senior research & development engineer, Team lead; Mentored by Varun Aggarwal ⬀ July 2011 – June 2016
  - A high-technology product start-up which matches skills to the right jobs in a data-driven way.
  - As one of the founding engineers of our product research group, I was involved in the design and development of all our core technology-products. Built skill-evaluation products for different skills like programming ability, speaking ability, etc. using state of the art technologies in speech processing, program analysis, NLP.
  - Over the course of my five year stint, I was responsible for hiring and growing our team to 20+ research and software engineers, managing the design and development of new products, publishing our work at top-tier conferences, and academic liaison.
  - Our products are being used by multi-nationals across US and Asia, and evaluate 1M+ job aspirants annually.

Awards & Managerial

- **Co-founder, Data Science for Kids.** A fun project to teach kids the basics of data science. *datasciencekids.org*
- **Co-organizer, ASSESS 2014 & 2015.** Co-organized annual international workshops on data-driven techniques for educational assessments, which were co-located at KDD 2014 and ICDM 2015. *aspiringminds.com/assess/2015*
- **Microsoft scholarship**, given to ten undergraduates from India to pursue a research project at Dept. of CSE, Indian Institute of Technology (IIT), Roorkee, 2010
- **ACM ICPC India on-site finalists, 2009, 2010.** Ranked an average of 18/∼400 over the two years.