1-Page Curriculum Vitae: Somali Chaterji (Fall 2024)

Associate Professor, Purdue University, West Lafayette; CEO, KeyByte
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Education

- Postdoc, Computer Science, Purdue [NSF Center for Science of Information (**CSoI**) Fellow].
- Postdoc, Biomedical Eng, Univ of Texas, Austin [American Heart Association (**AHA**) Fellow].
- PhD, Biomedical Eng, Purdue Univ [National Institutes of Health-funded Fellow, Future Faculty Fellow, Chorafas Dissertation Award].

Experience

Associate Professor, Agricultural & Biological Engineering (ABE) and Elmore Family School of Electrical & Computer Engineering (ECE), Purdue University, 2018-2024 [Expertise: **Thrust #1**: ML for Computer Systems and IoT; **Thrust #2**: ML for Genomics and Precision Health.]
Assistant Professor, ABE and ECE, Purdue University, 2018-2024
CEO, KeyByte LLC, 2021-Current. [A cloud computing startup: https://keybyte.xyz]
Technical Consultant, Entrepreneurial Institute (IC2), UT Austin, 2013-2020. [Expertise: Consulting for Security and AI/ML global startups.]

Select Awards and Honors

NSF-CPS Frontier Award (2024) on Resilient Distributed CPS through Rational and Dynamic Decision-Making Among Multiple Stakeholders (for autonomous vehicles application domain); **NAE Frontiers Symposium Fellow (2023) in Tokyo, Japan**; **NSF-CAREER award (2022)** from CISE, on streamlining streaming computer vision analytics; **Amazon AI award (2021)** on ML for mobile and embedded devices; **Wabash Heartland Innovation Network (WHIN) Challenge Grant (2018-22)** for digital agriculture and digital manufacturing from the Lilly Endowment; **NSF-CPS grant (2021-24)** on securing CPS for real-time agro-analytics; **Army Research Lab (ARL) grant (2020-23)** for consensus under energy constraints for dynamic distributed cyber-physical systems (CPS); **ARL grant (2020-25)** for SCRAMBLE: Secure, Real-Time, Distributed Decision-Making for the Autonomous Battlefield; Assured Autonomy Institute (A2I2).

Professional Membership and Service

Associate Editor - BMC Bioinformatics, Computational and Structural Biotechnology, & Frontiers in High Performance Computing (Cloud Computing); Currently on the Program Committees of NeurIPS, ICML, CVPR, USENIX ATC, ACM Middleware, ICDCS (Cloud Computing track), EuroSys. ACM and IEEE member, Program Co-Chair (IEEE COMSNETS 2025).

Patents, Select Publications, and Recent Invited Talks

1 patent on cloud computing (2022, first action allowance); 3 patents filed on cloud and serverless computing; 3 patents filed on video analytics. **Total = 7 patents**.
Recent invited talks: IU Bloomington (CS), Oregon State (CS, BME), U Sydney (CS), Rutgers (ECE), UC Davis (Biosystems Eng), UCLA (Chemical Eng), U Vienna (CS), U Edinburgh (CS), U Delaware (CS), Terasaki Institute of Biomedical Innovation.
Recent publications. Citations = 2,838, h-index = 27;
For more: https://schaterji.io/publications/.

1. Sharma, A., W. Chen, J. Zhao, Q. Qiu, S. Bagchi, S. Chaterji. "FLAIR: Defense against Model Poisoning Attack in Federated Learning." **Asia CCS** 2023, pp. 334-351. [Federated ML]
2. Lee, J., P. Wang, Ran Xu, S. Jain, V. Dasari, N. Weston, Y. Li, S. Bagchi, S. Chaterji. "Virtuoso: Energy-and Latency-aware Streamlining of Streaming Videos on Systems-on-Chips." **ACM Transactions on Design Automation of Electronic Systems** 28, no. 3 (2023): 1-32. [Video Analytics]
3. Zhou, Z., Z. Du, S. Chaterji. "Kratos: Context-Aware Cell Type Classification and Interpretation Using Joint Dimensionality Reduction and Clustering." **ACM-KDD** 2022, pp. 2616-2625. [ML for Genomics]
4. Mahgoub, A., E. Yi, K. Shankar, S. Chaterji, S. Elnikety, S. Bagchi. "Orion and the Three Rights: Sizing, Co-location, and Prewarming for Serverless DAGs." **OSDI** 2022, pp. 1-15. [Serverless Cloud Computing]
5. Xu, R., F. Mu, J. Lee, P. Mukherjee, S. Chaterji, S. Bagchi, Y. Li. "SMARTADAPT: Multi-branch Object Detection Framework for Videos on Mobiles." **CVPR** 2022, pp. 2528-2538. [Video Analytics]
6. Xu, R., P. Wang, S. Bagchi, Y. Li, S. Chaterji. "LiteReconfig: cost and content aware reconfiguration of video object detection systems for mobile GPUs." **ACM-EuroSys** 2022, pp. 334-351. [Video Analytics]

7. Roth, M., P. Jain, J. Koo, S. Chaterji. "Simultaneous learning of individual microRNA-gene interactions and regulatory comodules." **BMC Bioinformatics** 22, no. 1 (2021): 1-29. [Regulatory Genomics]