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Tanmay Ghai

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Education

- **University of Southern California** — Los Angeles, CA
  Master of Science in Computer Science — July 2020 – Dec. 2021

  Member of '20 Viterbi Summer Honors Program (VSOP), CS Dept. Best Research Award, GPA: 3.95/4.0

- **University of California, Berkeley** — Berkeley, CA
  Bachelor of Arts in Computer Science — Aug. 2015 – May 2019

  Member of CSUA, Sports Analytics Group at Berkeley, Dean's List: Spring 2018, Spring 2019

Experience

- **Twitter, Inc.** — San Francisco, CA
  Software Development Engineer II — May 2022 – Present
  - Engineer for the *security and privacy* team focused on threat & platform security, applied cryptography, vulnerability detection/management, and *privacy-preservify*-ing user data.

- **Workday, Inc.** — Pleasanton, CA
  Software Development Engineer II — October 2020 – May 2022
  - Engineer and team lead for the *reporting and analytics engine* - a multi-tenanted, performant, in memory processing engine responsible for over 2 billion+ queries monthly.
  - Building *Cosmos* - a framework for delivered analytic data sources and applications; performs 5x faster than existing RaaS reports and incremental data extraction using delta caches saves 99%+ of compute time. Helped ideate, design, and implement data-pipeline integration with new acquisition Peakon.

- **Workday, Inc.** — Pleasanton, CA
  Software Development Engineer I — July 2019 – October 2020
  - Engineer for the *web-server infrastructure* team responsible for all in/e-gress traffic into Workday; led team as scrum-master and technical team lead.
  - Delivered multi-step transaction processing framework for personas, a thread-level refactoring of platform level logging, and a REST streaming initiative with the VSS team, scanning all uploads/download within Workday.

Research & Selected Publications

- **Information Sciences Institute, USC** — Los Angeles, CA
  Researcher – **USC D-Security**, advised by Prof. Srivatsan Ravi. — Jan 2021 – Present

  My (broad) research interests are in privacy-preserving technologies and secure systems, particularly at the intersection of scalable distributed computing, data privacy, and machine learning. Currently, I'm looking into secure multi-party computation using applied cryptography. I was a graduate research asst. in the same group during my master's from July 2020 – Dec. 2021.

1. Yixiang Yao, **Tanmay Ghai**, Srivatsan Ravi, and Pedro Szekely. "AMPPERE: A Universal Abstract Machine for Privacy-Preserving Entity Resolution Evaluation", page 2394–2403. Association for Computing Machinery, New York, NY, USA, 2021. [paper]
2. Dimitris Stripelis*, Hamza Saleem*, **Tanmay Ghai***, Nikhil Dhinagar*, Umang Gupta, Chrysovalantis Anastasiou, Greg Ver Steeg, Srivatsan Ravi, Muhammad Naveed, Paul M Thompson, et al. "Secure neuroimaging analysis using federated learning with homomorphic encryption". In 17th International Symposium on Medical Information Processing and Analysis, volume 12088, pages 351–359. SPIE, 2021. [paper]
3. Dimitris Stripelis, Umang Gupta, Hamza Saleem, Nikhil Dhinagar, **Tanmay Ghai**, Rafael Sanchez, Chrysovalantis Anastasiou, Armaghan Asghar, Greg Ver Steeg, Srivatsan Ravi, Muhammad Naveed, Paul M. Thompson, Jose Luis Ambite "Secure Federated Learning for Neuroimaging". arXiv, 2022. [pre-print]

Programming Skills

- **Languages**: Java, C++, Python, Scala, SQL, JavaScript **Technologies**: Kafka, Spark, AWS, Git, PyTorch