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), 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

Workday, Inc. — Pleasanton, CA
Software Development Engineer II — July 2019 – Present

I am a software engineer on the Business Intelligence (BI) team, contributing to Workday's **Reporting & Analytics Engine** - a multi-tenanted, high performance, in-memory processing engine. Formerly, I was on the ui-server team where I was a **SDE 1 from July 2019 – Oct. 2020** and an intern in the summers of 2017 & 2018.

- **Cosmos**: Building framework to provide *delivered* analytic data sources and applications: performs **5x faster** than existing RaaS reports, incremental data extraction using delta-caches saves **99.8% of compute time**.
- **Core Reporting**: Triaged over 50+ issues spanning advanced/matrix reports, rolling aggregation/time series, computed views & calculated fields.
- **UIS**: Developed **Hubs** (a multi-step transaction processing framework) to support various Workday personas, implemented **Dovah** (a thread-level refactoring of platform level logging) to provide performant and finer granularity logs, and led the **VSS Streaming** initiative (a REST streaming approach to scan millions of uploads/downloads within Workday) on over a 1000 endpoints.
- **Internships**: In 2018, built **a full-stack, interactive scheduling platform** for workforce management and in 2017, delivered a **cross stack debugging micro-service** to detect & alert errors.

ServiceNow, Inc. — Santa Clara, CA
Cloud Platform Development Intern — May 2016 – Aug. 2016

- **Licensing & Usage Analytics**: Scraped, aggregated and analyzed usage analytic data for over 500+ customers; built models to identify trends and detect anomalies

RESEARCH & PUBLICATIONS

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

My research interests are in the intersection of scalable distributed computing, cyber-security, data privacy, machine learning and their applications to real-world problems. I was a **graduate research asst.** in the same group during my master's from **July 2020 – Dec. 2021**.

- **Privacy-preserving entity resolution**: AMPPERE: A Universal Abstract Machine for Privacy-Preserving Entity Resolution Evaluation. **CIKM '21**. Yixiang Yao, **Tanmay Ghai**, Srivatsan Ravi, and Pedro Szekely. [paper]
- **Secure federated learning**: Secure Neuroimaging Analysis using Federated Learning with Homomorphic Encryption. **SIPAIM '21**. Stripelis, Dimitris*, Hamza Saleem*, **Tanmay Ghai***, Nikhil J. Dhinagar*, Umang Gupta, Chrysovalantis Anastasiou, Greg Ver Steeg, Srivatsan Ravi, Muhammad Naveed, Paul M. Thompson and J. Ambite. [paper]

PROJECTS

- **Octane**: A simplified version of an SDN based Ethane-like system as described in the paper by Casado et al here.
- **Secure Audit System**: A decentralized, secure audit system using RSA digital signatures, AES-128 and homomorphic encryption. Write-up can be found here.
- **Morse Code Decoder**: CNN-LSTM-CTC deep learning model to decipher morse code irrespective of the medium used to generate it. Experiments and results can be found here.

PROGRAMMING SKILLS

- **Languages**: Java, C++, Python, JS, SQL, Scala   **Technologies**: Kafka, Spring, PyTorch, Hadoop, Spark