

# TANMAY GHAI

## Software Engineer | Researcher

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 📍 San Francisco Bay Area    🏠 [my homepage](#)

I am a software engineer at [Twitter](#) and a security, distributed systems & machine learning researcher in the networking and cybersecurity division at the [Information Sciences Institute](#).

### 🎓 EDUCATION

2020 – 2021    **Master of Science in Computer Science**, University of Southern California  
 2015 – 2019    **Bachelor of Arts in Computer Science**, University of California, Berkeley

### 👛 EXPERIENCE

May 2022 Present	<b>Software Engineer II, TWITTER INC.</b> <ul style="list-style-type: none"> <li>Engineer for the security and privacy team focused on threat intelligence and detection, platform security, applied cryptography, vulnerability management, privacy engineering/data management, and privacy-preserving user data.</li> </ul> <div>Scala/Python   Bazel   Aurora/Mesos   Kafka</div>
Jan. 2022 Present	<b>Researcher, INFORMATION SCIENCES INSTITUTE</b> <ul style="list-style-type: none"> <li>Researcher in the USC D-Security lab advised by Prof. <a href="#">Srivatsan Ravi</a>; continued on post my master's where I was a graduate research assistant in the same group from July 2020 – Dec. 2021.</li> <li>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 privacy-preserving machine learning and secure multi-party computation.</li> </ul> <div>C++/Python   PALISADE   SEAL   KGTK</div>
July 2019 May 2022	<b>Software Engineer I – II, WORKDAY INC.</b> <ul style="list-style-type: none"> <li>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. Built 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.</li> <li>Engineer and scrum-master for the web-server infrastructure team responsible for all in/e-gress traffic into Workday. 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.</li> </ul> <div>Java   Spring   Tomcat   Spark/HDFS   Kafka</div>

### 📖 PUBLICATIONS

- 2022    "Secure Federated Learning for Neuroimaging". arXiv, 2022. [[pre-print](#)]
- 2021    "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](#)]
- 2021    "AMPPERE: A Universal Abstract Machine for Privacy-Preserving Entity Resolution Evaluation", page 2394–2403. Association for Computing Machinery, New York, NY, USA, 2021. [[paper](#)]

### 🏆 AWARDS

- 2022    [CSCI Best Research Award](#) for work done while a master's student at USC.
- 2020    Member of the 2020 Cohort of the [Viterbi Summer Honor's program](#) (VSOP).
- 2018    Awarded UC Berkeley's [Dean's List](#) for the College of Letters & Sciences in the Spring 2018 semester.

### </> SKILLS

<b>Programming</b>	Python, Java, Scala, C/C++
<b>Frameworks</b>	Spring, Kafka, Bazel, Spark/HDFS, PyTorch, Aurora/Mesos, Tomcat, Docker
<b>Other Libraries</b>	PALISADE, SEAL, KGTK