



SOURADIP NATH

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Tempe, Arizona - 85288, USA

RESEARCH INTERESTS

Human Factors in Security and Privacy; Access Control; Large Language Models and Agentic AI

EDUCATION

- **Arizona State University** Fall 2023 - Current
Doctor of Philosophy (Ph.D.) in Computer Science
◦ Advisor: [Gail-Joon Ahn](#) Tempe, AZ, USA
- **Indian Institute of Engineering Science and Technology, Shibpur** Spring 2022
Bachelor of Technology (B.Tech.) in Information Technology Howrah, India
◦ GPA: 9.93/10.0 (First Class with Honors, Presidential Gold Medalist)

PUBLICATIONS

C=CONFERENCE, J=JOURNAL

- [C.1] **Souradip Nath**, Ananta Soneji, Jaejong Baek, Tiffany Bao, Adam Doupé, Carlos Rubio-Medrano, and Gail-Joon Ahn, "It's almost like Frankenstein: Investigating the Complexities of Scientific Collaboration and Privilege Management within Research Computing Infrastructures", in *2025 IEEE Symposium on Security and Privacy (SP)*, May 2025, pp. 2995–3013. [\[PDF\]](#)
- [C.2] **Souradip Nath**, Keb Summers, Jaejong Baek, and Gail-Joon Ahn. "Digital Evidence Chain of Custody: Navigating New Realities of Digital Forensics." In *2024 IEEE 6th International Conference on Trust, Privacy and Security in Intelligent Systems, and Applications (TPS-ISA)*, pp. 11-20. [\[PDF\]](#)
- [J.1] **Souradip Nath**, and Ruchira Naskar. "Automated image splicing detection using deep CNN-learned features and ANN-based classifier." *Signal, Image and Video Processing* 15, no. 7 (2021): 1601-1608. [\[PDF\]](#)

EXPERIENCE

- **Global Security Initiative, Arizona State University: Graduate Research Associate** Spring 2023 - Current
Advisor: [Gail-Joon Ahn](#) Tempe, AZ, USA
 - Leading research projects that integrate human-centered and technical approaches to security and privacy.
 - Designing and executing semi-structured interview studies and conducting thematic analysis to understand user practices, challenges, and needs around security and privacy.
 - Complementing human-centered findings with technical system-level exploration to design and implement deployable, system-level access control solutions.
 - Synthesizing research findings into actionable insights and disseminating them to diverse audiences through papers, posters and conference talks.
- **Deutsche Bank Technology, Data & Innovation: Technical Analyst Intern** Summer 2021
Manager: [Pragnya Seth](#) Pune, India
 - Utilized Python Pandas library to clean large datasets of scheduled jobs, conducted data analysis, and came up with an optimization algorithm for job scheduling using the Greedy algorithm.
 - Collaborated with a team of 3 and proposed a general framework for identifying an optimized job scheduling against a multi-parameter cost function.
- **IIST, Shibpur: Summer Research Intern** Summer 2020
Advisor: [Ruchira Naskar](#) Howrah, India
 - Researched "Image Splicing Detection using Deep Neural Networks" with a Proof of Concept implemented using Python frameworks Keras, and Tensorflow.
 - Proposed a novel Neural Network to classify authentic and spliced images with more than 97% accuracy.

TEACHING EXPERIENCE

- **School of Computing and Augmented Intelligence, ASU: Teaching Assistant** Fall 2024
Course: [Computer and Network Forensics](#), Instructor: [Jaejong Baek](#) Tempe, AZ, USA
 - Assisted in delivering a senior-level course (lectures and lab sessions) on Digital Forensics, covering the fundamentals of computer and network forensics including cloud, email, and mobile forensics.

PROJECTS

• A Human-centered Exploration of Access Control within Scientific Collaboration



Tools: [Zoom](#) (data collection), [Otter.ai](#) (transcription), [MaxQDA](#) (qualitative analysis), [ReCal2](#) (intercoder reliability)

- Conducted a **semi-structure interview-based study** with 24 key stakeholders of Research Computing Infrastructures (RCIs) to identify security and usability challenges in access control for scientific collaboration.
- Applied qualitative **thematic analysis** to interview data, uncovering that informal, trust-based access control and fragmented system design create significant security challenges and usability issues.
- Formulated actionable recommendations for improving security and usability in RCIs including design heuristics for effective access control, establishing a new direction for future research in RCI security.
- Authored a **top-tier security paper (IC.1)** accepted by the IEEE S&P, 2025, which provides the first qualitative study on human factors in RCI security.

• Towards Collaboration-Aware Resource Sharing in Research Computing Infrastructures

Tools: [Python](#) (tool implementation), [VirtualBox](#), [Ubuntu Server](#), [OpenLDAP](#), [NFS](#), [Slurm](#) (environment simulation)

- Investigated existing resource sharing practices within Research Computing Infrastructures (RCIs), revealing key gaps in their ability to support secure authorization in dynamic collaborative workflows.
- Developed CLEARS, a novel framework for collaboration-aware resource sharing that formally represents collaboration contexts to guide secure, dynamic access authorization in RCIs.
- Implemented a prototype of CLEARS and conducted a scenario-based case study with experimental evaluation to demonstrate that it delivers precise access enforcement while maintaining minimal execution overhead.

PROFESSIONAL SERVICE

- **Organzing Committee Member:** ACM SACMAT 2025-2026
- **External Reviewer:** ACM ASIACCS 2025, ACM CODASPY 2025, ACM SACMAT 2024-2025, CSET 2024

HONORS AND AWARDS

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| • President of India Gold Medal for University Topper (Undergraduate)
<i>Indian Institute of Engineering Science and Technology, Shibpur, India</i> | December 2022 |
| • Silver Medal for Department Topper (Information Technology)
<i>Indian Institute of Engineering Science and Technology, Shibpur, India</i> | December 2022 |
| • New American University Scholarship – USD 10,000
<i>Arizona State University, AZ, USA</i> | August 2022
 |
| • Swami Vivekananda Merit-cum-Means Scholarship – INR 2,40,000
<i>Government of West Bengal, India</i> | August 2018
 |
| • GP Birla Merit-cum-Means Scholarship – INR 2,00,000
<i>GP Birla Educational Foundation, India</i> | August 2018
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MENTORSHIP EXPERIENCE

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| • Faraz Hashempoor: CTF High School Summer Intern: Arizona State University
<i>Conducted a semi-automated analysis of safety and privacy conversations on ChatGPT-based mental health support.</i> | Summer 2025
[Poster] |
| • Jacob Li: CTF High School Summer Intern: Arizona State University
<i>Conducted a reddit-based analysis of PowerSchool data breach understanding stakeholder-specific insights and reactions.</i> | Summer 2025
[Poster] |
| • Shreyan Nath: CTF High School Summer Intern: Arizona State University
<i>Conducted a mixed methods reddit-based analysis on users' safety and privacy concerns around virtual reality technologies.</i> | Summer 2025
[Poster] |
| • Riya Dhuri: CTF High School Summer Intern: Arizona State University
<i>Conducted a retrospective study exploring young adults' maturation toward social media safety and privacy.</i> | Summer 2024
[Poster] |
| • Deepika Moola: CTF High School Summer Intern: Arizona State University
<i>Conducted a mixed methods reddit-based analysis on how people on the internet talk about online safety and privacy.</i> | Summer 2024
[Poster] |

SKILLS

- **Programming Languages:** Python, C/C++, Bash
- **Qualitative Analysis:** MaxQDA, Google Sheets, ReCal2
- **Other Tools & Technologies:** VirtualBox, Ubuntu Server, OpenLDAP, NFS, Slurm

REFERENCES

1. **Gail-Joon Ahn**
Professor, School of Computing and Augmented Intelligence
Arizona State University
Email: gahn@asu.edu
Relationship: Ph.D. Advisor
2. **Jaron Mink**
Assistant Professor, School of Computing and Augmented Intelligence
Arizona State University
Email: jaron.mink@asu.edu
Relationship: Advisor, Collaborator
3. **Carlos Rubio-Medrano**
Assistant Professor, Computer Science - Cybersecurity
Texas A&M University-Corpus Christi (TAMU-CC)
Email: carlos.rubiomedrano@tamucc.edu
Relationship: Advisor, Collaborator
4. **Ananta Soneji**
Ph.D. Candidate, School of Computing and Augmented Intelligence
Arizona State University
Email: asoneji@asu.edu
Relationship: Mentor, Collaborator