



University of
Pittsburgh®

Informatics and Networked Systems
School of Computing and Information

You are receiving this email because you are enrolled in the MSIS/MST graduate degree programs within the Department of Informatics and Networked Systems at the School of Computing and Information. Each weekly newsletter will feature important updates on career/academic and job opportunities, department and school events, enrollment guidance and upcoming academic deadlines.



Spring Term 2023 Enrollment Appointment Office Hours

Monday: 10am to 11am, available virtually at <https://pitt.zoom.us/j/91954241565>
Tuesday: 2pm to 4pm, available in person in IS Building Room 706
Wednesday: 2pm to 3pm, available virtually at <https://pitt.zoom.us/j/91954241565>
Thursday: 11am to 12pm and 1pm to 2pm, available in person in IS Building Room 706
Friday: 11am to 12pm, available virtually at <https://pitt.zoom.us/j/91954241565>

Announcements

Save the Date:

Professor Daqing He, and the Department of Informatics and Networked Systems (DINS) are pleased to announce that we will be hosting a Celebration Reception for all students graduating from DINS this term. You are more than welcome to bring your family and friends to this casual celebration.

Please join us for two events celebrating Academic Year 2022-2023 graduating students:

School of Computing and Information Spring 2023 Graduate Recognition Ceremony

April 29 | SCI Graduate Recognition Ceremony The Spring 2023 SCI Graduate Recognition Ceremony will be held on-campus from 2 - 4:30 p.m. on the first floor of Lawrence Hall. This will include a formal School-wide ceremony as well as a reception/social hour with light refreshments.

Those who applied to graduate from one or more degree or certificate programs in SCI in Spring 2023 can [RSVP here](#).

Department of Informatics and Networked Systems Reception

Friday, April 28

4:00 p.m.

Information Sciences Building, Room 316

Both undergraduates and graduates of the programs in the Department of Informatics and Networked Systems are welcome.

Events

Overview of Learning Quantum States



Srinivasan Arunachalam, Senior Research Scientist, IBM Almaden

Wednesday, April 26, 2023

11 am to 12 noon

Virtual: Join Zoom Meeting, Meeting ID: 959 7218 6621 <https://pitt.zoom.us/j/95972186621>

Abstract: Learning an unknown n -qubit quantum state is a fundamental challenge in quantum computing theory and practice. Information-theoretically, it is well-known that tomography requires exponential in n many copies of an unknown state in order to estimate it upto small trace distance. But a natural question is, are there models of learning where fewer copies suffice and are there interesting classes of states that can be learned with fewer copies? In this talk I will discuss the following results: (1) learning local Hamiltonians on n qubits using $\text{poly}(n)$ many samples of the quantum Gibbs state, (2)

In the past few years, there have been various learning models introduced to capture the learnability of quantum states; here I will overview many recent results and discuss various equivalences between these learning models. Both these works pave the way towards a more rigorous application of using machine learning techniques to learning quantum states.

Efficient Evaluation of Attribute-Based Access Control Policies

Shamik Sural, Department of Computer Science and Engineering, Indian Institute of Technology (IIT) Kharagpur

Friday, April 28, 2023

3:00 pm to 4:00 pm

In-Person: Room 538-539 Conference Room, 130 N. Bellefield Avenue (across the street from the IS Building).
No virtual option available.

Abstract: Access control mechanisms are used by organizations to mitigate the risk of unauthorized access to data, resources and systems. For traditional information systems that deal only with a pre-specified set of users, access control models like Discretionary Access Control (DAC), Mandatory Access Control (MAC) and Role-Based Access Control (RBAC) work satisfactorily. The primary limitation of these traditional models is their significant dependence on user identity for making access decisions. Owing to this, such models are found to be unsuitable for dynamic situations, where unknown users from various domains may have to be given access. Further, an inherent lack of extensibility makes it difficult to consider the context in which the access request is made. To handle these requirements, the Attribute-Based Access Control (ABAC) model has recently been proposed.

In ABAC, a user is permitted or denied access to an object based on a set of rules (together called an ABAC Policy) specified in terms of the values of attributes of the different types of entities, namely, user, object and environment. Efficient evaluation of these rules is therefore essential in ensuring decision making at on-line speed when an access request comes. Sequentially evaluating all the rules in a policy is inherently time consuming and does not scale well with the size of the ABAC system and the frequency of access requests. This problem, which is quite pertinent for practical deployment of ABAC, has so far received little attention from the research community.



In this talk, we introduce two variants of a tree data structure for representing ABAC policies, which we name as PolTree. In the binary version (B-PolTree), at each node of the tree, a decision is taken based on whether a particular attribute-value pair is satisfied or not. The n-ary flavor (N-PolTree), on the other hand, grows as many branches out of a given node as the total number of possible values for the attribute being checked at

that node. Extensive experimental evaluation with diverse data sets shows the scalability and effectiveness of this approach.

Bio: Shamik Sural is a full professor in the Department of Computer Science and Engineering, Indian Institute of Technology (IIT) Kharagpur. He received the Ph.D. degree from Jadavpur University, Kolkata, India in the year 2000. Before joining IIT in 2002, Shamik spent more than a decade in the Information Technology industry working in India as well as in Michigan, USA.

Shamik was a recipient of the Alexander von Humboldt Fellowship for Experienced Researchers in 2009, which enabled him to carry out research at TU Munich, Germany. He spent the Fall 2019 semester at Rutgers University as a Fulbright scholar engaged in both teaching and research. He is also an ACM Distinguished Speaker. Shamik is a senior member of IEEE and has previously served as the Chairman of the IEEE Kharagpur section. He is currently serving on the editorial boards of IEEE Transactions on Dependable & Secure Computing and IEEE Transactions on Services Computing. His research interests include computer security and data science.

Career/Academic Opportunities

Systems Administrators in Pittsburgh: Servers, Clusters and Supercomputers for Computational

Biochemistry

D. E. Shaw Research

On-site ·
Pittsburgh, PA

Application deadline
May 31, 2023 2:29 PM

Role Description

Exceptional sysadmins sought to manage systems infrastructure, networks, and data center operations at a state-of-the-art facility in Pittsburgh, PA. Successful hires will be responsible for bring-up and ongoing maintenance of some of the world's most advanced supercomputers, as well as creating, implementing, and maintaining processes and infrastructure to operate these machines. They will also be responsible for our server and HPC cluster environments, including:

- Massively parallel custom supercomputers with custom interconnects and direct liquid cooling technology
 - Petabytes of storage
 - High-performance local and wide-area networks
- Linux HPC clusters ranging from hundreds to thousands of CPU cores and GPUs

Ideal candidates will have strong fundamental knowledge of Linux concepts such as file systems, networking, and processes in addition to practical experience administering Linux systems. Relevant areas of expertise might include large-installation systems administration experience, operational experience in data centers, site reliability engineering (SRE) experience, and strong programming and scripting ability, but specific knowledge of and level of experience in any of these areas is less critical than intellectual curiosity, versatility, and a track record of achievement. Candidates should have excellent communication skills, and we will consider candidates at all levels of experience.

<https://apply.deshawresearch.com/careers/Register?pipelineId=606&source=University+of+Pittsburgh-PGH>

Full Stack Software Engineer Intern

Sun Net, Inc.

Remote ·
San Jose, CA

Application deadline
May 5, 2023 3:00 AM

Role Description

Sun-Net is looking for smart, agile, intellectually curious engineers who will help us in our mission to build secure, scalable, reliable and efficient software for our customers in Electric Utility industry. Sun-Net's iTOA software is being used by thousands of people who deliver power on a daily basis.

We are a close-knit team with a passion for improving overall user experience and well regarded among our customers for our reliable product and excellent customer service.

You can look us up at: www.sunnetsoftware.com

This is a unique opportunity where you can explore and implement your skills in both frontend and backend aspects of software development. The ideal candidate will be a self-starter who can collaborate with peers to solve day-to-day problems, has a passion of designing efficient algorithms and has great debugging skills.

Responsibilities:

- You will be working with a team of talented engineers, Project Management, and get a chance to work closely with our customers to solve problems and build software impacts daily operations of energy utilities.
- As a Software Engineer Intern, you will take part in Requirement gathering, Design and Development for our enterprise product iTOA® (integrated Tools for Operations Application).

Technical Qualifications:

- BS or MS in Computer Science or related disciplines or equivalent
- Experience in developing, debugging and maintaining code in object-oriented languages such as Java
 - Strong coding, debugging and problem-solving skills.

We are currently hiring candidates with a strong knowledge of:

Front-end Technologies:

- JavaScript, jQuery, CSS, Bootstrap, HTML and responsive web design.
- Knowledge of REST concepts. GraphQL is a plus.

Back-end Technologies:

- Java, J2EE
- Hibernate, JPA, Spring, Spring Boot
- Basic SQL queries in Relational Database such as Oracle or MS SQL Server

Additionally, on the non-technical side, here are our expectations:

- * Work closely with product manager, project manager, development lead and develop new functionality.
- * Collaborate with QA team to ensure quality of software deliverables.
 - * Effective and positive communication skills
- * Motivation to document work and also write technical/functional specifications.

[Full Stack Software Engineer Intern | Sun Net, Inc. | Handshake \(joinhandshake.com\)](#)

Enrollment Dates

April 29: Spring Term Ends

*******Please be advised, that if you have any questions,
you can always reach out to me via the email and phone
number below. *******

Regards,

James Petraglia (Pa-trail-ya)