Anakin Dey

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EDUCATION

University of Illinois Urbana-Champaign   May 2024
Bachelors of Science, Mathematics, Minor in Computer Science   *GPA: 3.96/4.0*

Completed Coursework: Abstract Linear Algebra, Data Structures, Discrete Structures, Probability Theory
Current Coursework: Abstract Algebra, Algorithms

EXPERIENCE

Undergraduate Research - LEADCAT   Aug 2021 – Present
University of Illinois Urbana-Champaign: Professor Melkior Ornik

- Determine optimal paths for single/multiple agents and partitions for graphs with targets of various importance
- Use Markov Decision Processes in conjunction with value/reward/cost functions to create graph algorithms
- Implement algorithms in Python and MATLAB to obtain numerical results for algorithms created

Discrete Structures Course Assistant   Aug 2021 – Present
University of Illinois Urbana-Champaign

- Teach concepts such as algorithmic runtime, trees, graphs, and set theoretical operations by integrating both mathematical and computer science perspectives
- Lead student group discussions by walking through course problems and solutions and explaining concepts in a comprehensible and digestible manner both in an online forum of 400 students and in class

Software Intern   May 2021 – Aug 2021
SiteIQ

- Improved the accuracy of status reports from multiple fueling stations using Python and Javascript by streaming and parsing data sources such as two-wire serial and ZMODEM files
- Identified error codes and data that were not described in given documentation but present in 50% of devices and logged them for further analysis by the team
- Presented findings to managers and coworkers with multiple levels of technical understanding

Intro to Computer Science Course Assistant   Jan 2021 – May 2021
University of Illinois Urbana-Champaign

- Created code walkthroughs for homework assignments explaining syntax and patterns in programming using Java
- Answered shorter programming questions and assisted with Android Studio final class project in office hours and class forum for over 800 students
- Tested course material to help transition the course from Java to Kotlin
- Ran pre-and-post quiz review sessions to help students identify gaps in their understanding

EXTRACURRICULARS

ACM: SIGPwny | Security Interest Group
Officer

- Created and ran meetings on cryptographical ideas such as RSA, Diffie-Hellman, block cipher modes, and elliptic curves by creating presentations and a variety of security challenges
- Created steganography, reverse engineering, and Discord bot challenges for UIUCTF, a capture-the-flag competition, using Python, C++, and C
- Tested reverse engineering and cryptography challenges using various tools and programs like Ghidra and GDB
- Provided support to over 1900 participants by answering questions and teaching security concepts to competitors who are new to security

PROJECTS

Erdős Numbers for Patents | C++, GDB, Catch2

- Implemented graph algorithms such as Brandes' and Dijkstra's in C++ to identify candidates to act as the zero-point for Erdős numbers
- Created a test suite using Catch2 and debugged using GDB in order to test and maintain code between the group

TECHNICAL SKILLS

Languages: C++, Python, SageMath, Typescript, Verilog, MIPS, C, Java, Kotlin, MATLAB, Mathmatica, SQL
Tools / Frameworks: Bash, Git, Linux, SageMath, GDB, Catch2, Node.js, Matplotlib, Plotly, Pandas