Tanishq Jasoria

Senior Undergraduate, Department of Mathematics

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EDUCATION

Indian Institute of Technology Kharagpur

Integrated Master of Science (MSc), Mathematics and Computing | CGPA – 7.34 *04/2021*

- Relevant Coursework – Algorithms, Object Oriented Systems Design, Discrete Mathematics, Systems Programming, Computer Organization and Architecture, Cryptography and Network Security, Switching and Finite Automata
- MOOCs – Operating Systems, Computer Networks, Deep Learning Specialization, Reinforcement Learning

WORK EXPERIENCE

Secure Systems Lab, New York University [Uptane] [TUF]

Associate Research Scientist *05/2019 – 07/2019*

- Performed vulnerability assessment of Uptane by carrying out various cyber-attacks in a simulated environment
- Prevented rollback and hardware mismatch attacks on Uptane, in case of a compromised software repository
- Encrypted the updates, delivered using Uptane, by implementing hybrid end-to-end encryption (RSA2048 + AES128)
- Added the support to externally sign a repository metadata in TUF using hardware security tokens (PIV/CCID)

Areas: Python, Secure Software Development, Encryption, Public Key Infrastructure, Systems Security

Kharagpur Robosoccer Students' Group (KRSSG) [GitHub]

Team Head, Embedded and Control Systems Team *02/2017 – Present*

- Developed the control architecture based on Finite State Machines for coordinated control of RoboCup SSL robots
- Implemented RTOS (ChibiOS) for scheduling of various tasks performed by central control board (STM32F407)
- Spearheaded a team of 50 students to win a Silver Medal in technical challenges round at RoboCup 2018

Areas: Embedded C, Verilog, Multi-Agent Coordination, Distributed Systems, Finite State Machine, Control Systems, RTOS

Rehabilitation Robotics [GitHub]

Algorithm Designer and Hardware Developer *11/2017 – 08/2019*

- Developed a robotic exoskeleton to impart locomotive ability to assist the people with neurological disorders
- Designed a wearable device to record the gait-cycle, with a latency of 1.2 seconds, using nRF and Raspberry Pi

Areas: Python, C++, Ad-Hoc Networks, Embedded Control Systems, Rehabilitation Robotics

Aspen Bower Electric Vehicles

Power Train Engineer *03/2018 – 04/2018*

- Implemented a control system for Switched Reluctance Motor(SRM), increasing the torque gain by 230%
- Designed and fabricated a hardware unit to read the angular position of a SRM using axial mount magnetic encoders

Areas: Embedded C, ARM Architecture Switched Reluctance Motor, Optimal Control, Direct Torque Control

SELECTED PROJECTS

wish | *A UNIX like shell [GitHub]*

Developed a UNIX like shell in C with support for redirection, parallel commands, environment variables and piping.

Memory Resident File system

Designed and implemented a memory resident file-system supporting multi-user access.

Intrusion Detection System | *Department of Computer Science and Engineering*

Developed an intelligent intrusion detection system for computer networks using Deep-Fuzzy Neural Networks.

Deep Learning Projects | *deeplearning.ai [GitHub]*

Implemented Object Detection System (YOLOv2), Face Recognition System and Neural Style Transfer using Deep Neural Networks and used Residual Networks to overcome vanishing gradient problem in "very deep" CNNs.

TECHNICAL SKILLS

Programming Languages/Packages: Python, C, C++, JAVA, Go, x86 Assembly, Verilog, SQL, TensorFlow, Keras

Software/Scientific tool: Git, Linux Shell, Eagle, Xilinx ISE, LTSpice, Docker

LEADERSHIP AND AWARDS

General Secretary | *Space Technology Students' Society* *08/2018 – Present*

Undertook the responsibility for the administration and management of finances amounting to over 10 lakhs ($14000)

Events Head | *National Students' Space Challenge* *05/2018 – 05/2019*

Spearheaded a team of 15 Sub-Heads and 40 Junior-Coordinators to organize the eighth edition of India's Largest Space Technology Festival, being responsible for the planning, design and publicity and execution of technical events in NSSC

KVPY Scholar – Awarded a fellowship of INR 4.64 Lakhs ($6500) by DST, Government of India *08/2016*

Campus Sustainability Challenge - Secured 3rd position among 23 participating IITs at Inter-IIT Tech Meet *12/2018*

IBM Blockchain Hackathon- Progressed to the finals, being one of the top 20 teams, nationwide. *01/2018*