2018 PRIMES COMPUTER SCIENCE CONFERENCE

Program for **R**esearch **I**n **M**athematics, **E**ngineering, and **S**cience
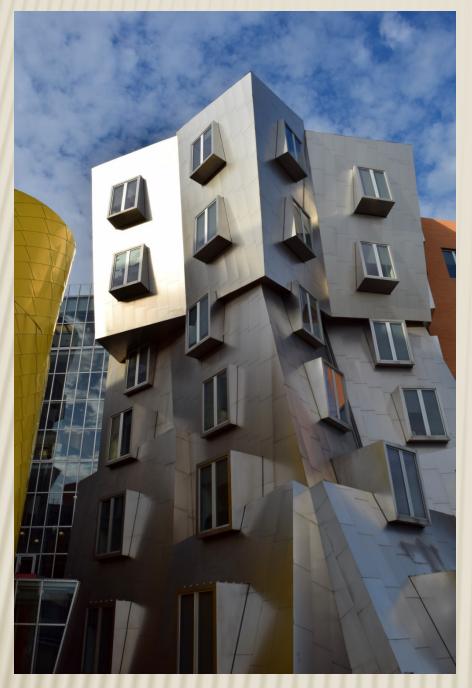for High School Students

Photo: Slava Gerovitch

Saturday, October 13

2:00 pm Welcoming remarks
Dr. Slava Gerovitch, PRIMES Program Director
Prof. Srini Devadas, MIT EECS Department

2:10 pm Session 1

Sanath Govindarajan and Walden Yan, *Secure image classification with lattice-based fully homomorphic encryption* (mentor William Moses)
John Kuszmaul, *Verkle trees: Ver(y short Mer)kle trees* (mentor Alin Tomescu)
Yiming Zheng, *Scaling transaction verifications in cryptocurrencies* (mentor Alin Tomescu)
Robert Chen, *Aleator: Random beacon via scalable threshold signatures* (mentor Alin Tomescu)

3:30 pm Session 2

David Lu, XRD: *A Scalable messaging system with cryptographic privacy* (mentor Albert Kwon)
Ethan Mendes and Patrick Zhang, *Maintaining the anonymity of direct anonymous attestations with subverted platforms* (mentor Kyle Hogan)
Shashvat Srivastava, *AnonStake: An Anonymous proof-of-stake cryptocurrency via zero-knowledge proofs and Algorand* (mentor Kyle Hogan)

4:30 pm Session 3

Michael Gerovitch, Neil Malur, and Hari Narayanan, *The Second Opinion Project: Leveraging external knowledge databases for additional patient medical options* (mentor Dr. Gil Alterovitz)
Yingtong Zhao, *Server and interface for genetic risk assessment* (mentor Dr. Gil Alterovitz)
Leo Dong, *Novel feature learning method of gene expression data based on an optimized denoising autoencoder* (mentor Dr. Gil Alterovitz)
Andrew Zhang, *Antimicrobial resistance prediction using deep convolutional neural networks on whole genome sequence data* (mentor Dr. Gil Alterovitz)

5:45 pm Session 4

Anusha Murali, *A Semi-Supervised dimensionality reduction method to reduce batch effects in genomic data* (mentor Dr. Mahmoud Ghandi, Broad Institute)
Sanjit Bhat, *Towards efficient methods for training robust deep neural networks* (mentor Dimitris Tsipras)
Aditya Saligrama and Andrew Shen, *A Practical analysis of Rust's concurrency story* (mentor Jon Gjengset)

Room 4-370, MIT
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