13th Annual Coordinate Science Lab Student Conference, 2018
Final Report

The 13th Annual CSL Student Conference (CSLSC) was held between the 21st and 23rd of February 2018. The central goal of CSLSC is to enable CSL graduate students to present their work, listen to and interact with outstanding faculty members, corporate representatives and invited students from other top schools. The student conference is a multidisciplinary effort and it engages students and postdocs from several departments in University of Illinois. The conference covers topics Circuits, Decision and Control, Reliable and High-Performance Computing, Signals Processing, Networks, Communications, Machine Learning Theory, and Artificial Intelligence. The student conference promotes research through an environment of learning, interaction and collaboration.

The flagship themes of the conference were Decision and Control, Machine Learning Theory, Artificial Intelligence in Action and Information Processing in Silicon. The conference included a plenary talk, 4 keynote talks, 3 invited student talks, 17 UIUC student talks, a poster session, a panel discussion, a robotics demonstrations session, corporate day, and a closing reception dinner and awards ceremony.

Major Achievements

Over the past few years the conference has expanded with the inclusion of novel ideas in each edition. This year we expanded the reach and impact of the conference significantly, with record 800 registrants participating in various parts of the conference. The conference saw the participation of people from 15 different institutions across the nation and 54 disciplines.

This year was the first ever Corporate day at CSL student conference. The corporate day comprised of two main events – workshops by corporate representatives and graduate student job fair. We had 3 corporate workshops conducted by representatives from NVIDIA, Honeywell and Microsoft discussing a variety of topics from GPU based computing and AI applications to corporate research. Graduate Student Job Fair saw the participation of 18 companies and over 150 graduate students seeking internship and career opportunities. We had over 300 resume submissions for the job fair.

The conference was also diversified this year to include popular new topics in the form of dedicated sessions for Information Processing in Silicon, Machine Learning Theory, Artificial Intelligence in Action, and Decision & Control.

We received a total of 89 abstracts for 20 student presentations across the 4 sessions. Each session contained up to five talks by UIUC students and up to one talk by an invited student from a top school.

Through the robotics demonstration session, held for the second year running, we created the platform to display the robots from the various labs across UIUC in action. More than 150 people attended the robotics demonstration session and were able to interactively learn about the various robotics projects around campus.

As is the belief and goal of CSL, the conference promotes collaboration, healthy interaction and interdisciplinary research and with the years the conference has consistently evolved toward enabling the same.

Plenary Talk

The conference began with a plenary talk on the evening of the 21st of February by Dr. Eric Horvitz, technical fellow and director of Microsoft Research Labs. The talk was on "Artificial Intelligence: Advances and Aspirations", with an emphasis on emerging fields of research with the potential to revolutionize technology and business. The talk was very well received and drew an attendance of close to 250 students. The talk was followed by a welcome reception.


Keynote Talks

Each session of the conference included a keynote talk by prominent researchers from industry and academia. The talks were on a wide range of topics from energy efficient computing to learning NN architectures. The keynote talks drew large crowds of over 50 attendees on average.

1. **Prof. Vivienne Sze** (Associate Professor, EECS, MIT): "Energy-Efficient Edge Computing for AI-driven Applications"
2. **Prof. Esteban Real** (Researcher, Google Brain): "Learning and Learning-to-learn Research by the Google Brain Team"

3. **Prof. Allen Tannenbaum** (Distinguished Professor, CS, Applied Math & Statistics, SUNY SB): "Optimal Mass Transport and the Robustness of Complex Networks"
4. **Prof. Avrim Blum** (Chief Academic Officer, TTIC): "Learning about Agents and Mechanisms from Opaque Transactions"
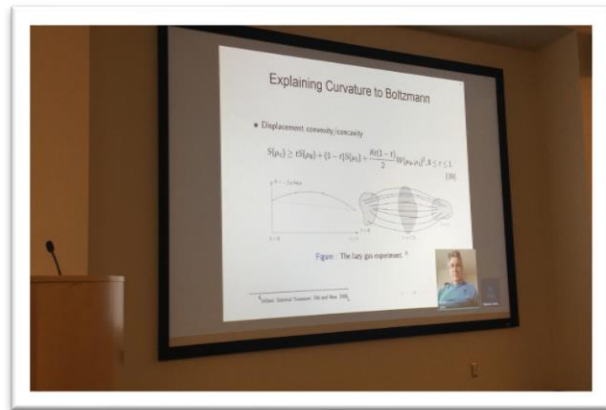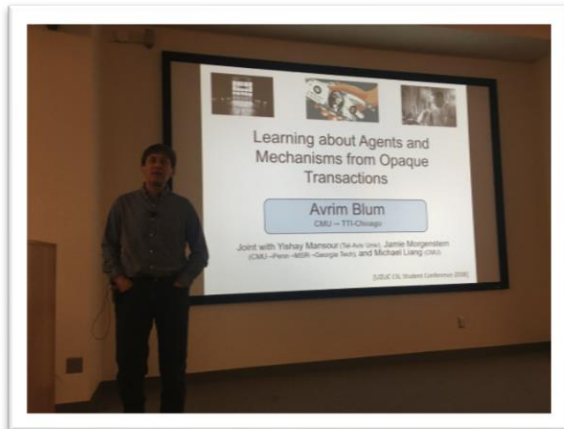

Invited Student Talks

Continuing our efforts to promote an environment of collaboration across universities, we invited 4 students (of which 1 cancelled due to weather) from other universities to present at the conference. The invited student talks were:

1. **Avanti Shrikumar** (Ph.D. student, Stanford University): "Not just a black box: Interpretable deep learning for genomics and beyond"
2. **Karthik Gopalakrishnan** (PhD student, MIT): "Stability and control of switching network models: An air traffic delay example"

3. **Abhiram Natarajan** (PhD Student, Purdue University): "Communication-Efficient Distributed Learning of Discrete Probability Distributions"

UIUC Student Talks

The primary focus of the conference is to serve as a platform for the students of CSL to present and promote their research work. To this end, this year we had a total of 20 talks distributed across the 4 sessions. The speakers were selected from a set of 89 abstract submissions after a careful and comprehensive screening process. A comprehensive list of the speakers, their abstracts, and videos of their talks can be found on our website. A best student speaker award was also conferred to the best student presentation in each session.
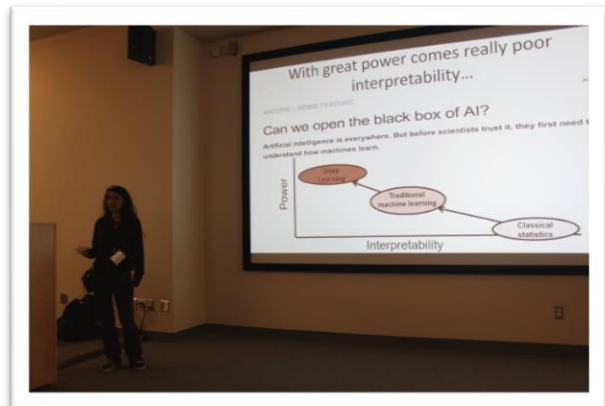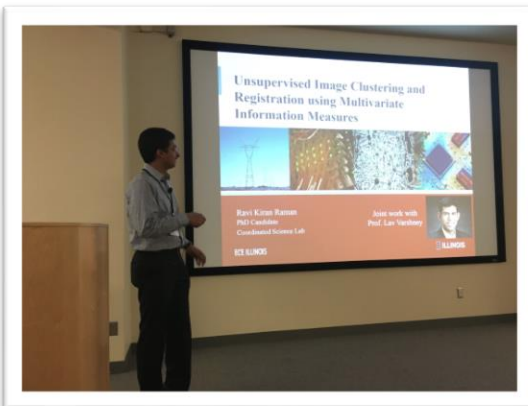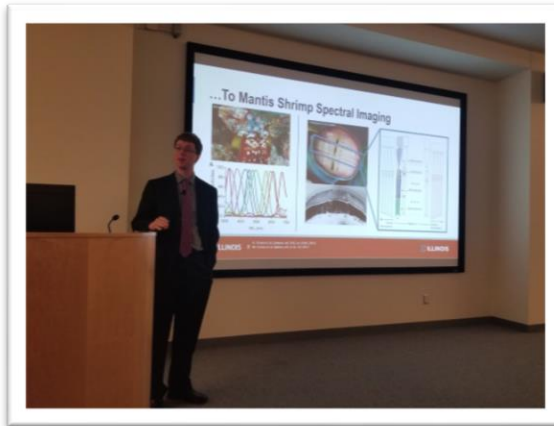
Poster Session

The conference also included a poster session. The committee selected a total of 21 posters for the session and the title of the posters and authors can be found at our website. Two best poster awards were conferred at the reception dinner.
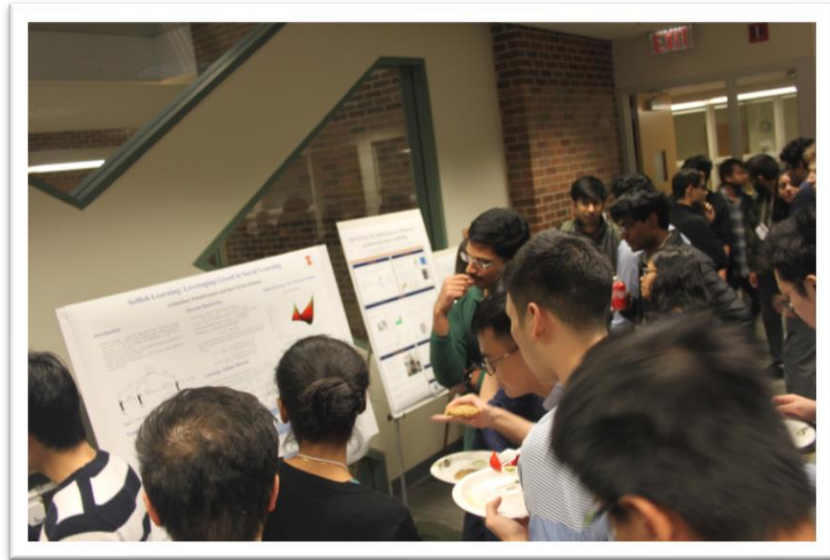
Robotics Demonstration Session

For the second year running, the robotics demonstration session invited students from the campus to exhibit their robots in action at the Intelligent Robotics Laboratory (IRL) at UIUC. The event saw the participation of a total of 12 robots, the details of which can be found on our website. Two best demos were also conferred awards at the reception dinner.
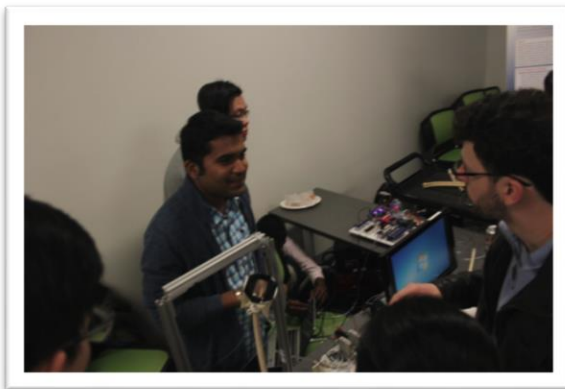
Corporate Day – Workshops by Industry Representatives

Newly introduced this year were three company workshops given by representatives from NVIDIA, Honeywell, and Microsoft. The workshops were well received and attracted a large crowd of students who got the opportunity to learn about the research carried out in the industry.

Corporate Day – Job Fair

The conference also included the second edition of the graduate student job fair. The job fair aims at providing a platform for employers and graduate students to get a network. This year included 18 companies including Microsoft, Intel, NVidia, and several national labs. It also saw the participation of over 150 graduate students seeking career and internship opportunities and a submission of over 300 resumes.

Panel Discussion

The conference had a panel discussion. The panel examined questions relating to the effects of technologies on political discourse and policy, including but not limited to social media as a means of information spread in a network, measures of fairness and computational tools for redistricting, and law, privacy, and security in the digital age. Panel members included faculty from UIUC and company representatives.

Acknowledgment

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