



## 12<sup>th</sup> Annual Coordinate Science Lab Student Conference, 2017 Final Report

The CSL Student Conference is a completely student run conference featuring invited talks by distinguished speakers from academia and industry, and exceptional students from CSL, University of Illinois at Urbana– Champaign, and other top universities. The 12<sup>th</sup> Annual CSL Student Conference (CSLSC) was held between the 15<sup>th</sup> and 17<sup>th</sup> of February, 2017.



The main goal of the conference is to enable CSL students to present their work and interact with faculty, invited speakers, industry representatives, and invited students from other top schools. The conference engages students and faculty from various departments at the University of Illinois working on various topics in control, computing, communications, signal

processing, and electronics. The multidisciplinary nature of the conference is one that fosters collaboration between students working in different areas. The conference promotes research through an environment of learning, interaction and collaboration.

The flagship themes of the conference were Decision and Control, Systems and Networks, Machine Learning and Signal Processing, Bioinformatics and Computational Genomics, and Information Processing Circuits and Systems. The conference also included the first robotics demonstration session to create an exhibition of the robots from various departments at UIUC.

The conference included one plenary talk, 4 keynote talks, 4 invited student talks, and 17 UIUC student talks, a Poster Session with 17 posters, a panel discussion for each session, a robotics demonstration session with 15 participating groups, the 2<sup>nd</sup> CSLSC Graduate Student Job Fair, 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 a record 600 registrants participating in various parts of the conference. The conference saw the participation of people from 14 different institutions across the nation and 40 disciplines. The conference also included 58 presentations and four panel discussions in total.

Through the introduction of the robotics demonstration session, we created the platform to display the robots from the various labs across UIUC in action. We also extended our outreach beyond university students this year, inviting high school and middle school students from University Laboratory High School, Next Generation School, and Urbana Middle School to interact, observe, and learn from the robotics demonstration session. They were all participating in an extra-curricular robotics program, and the session served as a great inspiration for them.

The conference was also diversified this year to include popular new topics in the form of dedicated sessions for Bioinformatics and Computational Genomics, and Information Processing Circuits and Systems, apart from the usual topics of Machine Learning, Control, Networks, and Signal Processing.

We received a total of 55 abstracts for 17 UIUC student presentations across the 4 sessions. Further, we also received a total of 36 abstracts from non-UIUC students from various universities across the country. One student was selected as an invited student speaker for each session.



In addition, we also introduced session-specific panel discussions for each of the four sessions this year. The panels, comprised of professors from UIUC and the keynote speakers focused on area-specific, technical questions on emerging topics that promote research and discussion.

As part of the Graduate Student Job Fair, we saw the participation of 14 companies and over 150 graduate students seeking internship and career opportunities.

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](#)

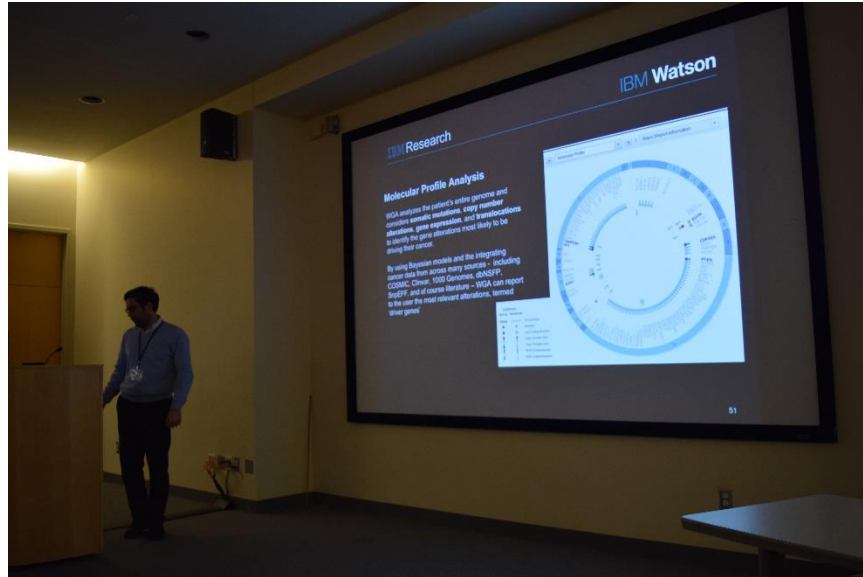
The conference began with a plenary talk on the evening of the 15<sup>th</sup> of February by Dr. Arvind Krishna, Senior Vice President, IBM Research. The talk was on “Accelerating Technology Disruption”, with an emphasis on emerging fields of research with the potential to revolutionize technology and business. The talk was very well received and drew an attendance of close to 200 students.



The talk was followed by a welcome reception and networking session.

## Keynote Talks

Each session of the included a keynote talk by prominent researchers from industry and academia. The talks were on a wide range of topics from deep learning to brain inspired computing. The keynote talks drew large crowds of over 100 students on average.



1. **Dr. Filippo Utro** (Research Scientist, Computational Genomics Group, IBM Research): "Bringing Genomics to the Bedside"
2. **Prof. Eilyan Bitar** (Assistant Professor, School of Electrical and Computer Engineering, Cornell University): "Competition in Electricity Markets: Equilibria, Paradoxes and Biases"
3. **Prof. Kwabena Boahen** (Associate Professor, Bioengineering, Stanford): "Neuromorphic Computing"
4. **Prof. Richard Baraniuk** (Victor E. Cameron Professor, Rice University): "A Probabilistic Theory of Deep Learning"



## Invited Student Talks

Continuing our efforts to promote an environment of collaboration across universities, we invited 4 students from to present at the conference. The invited students were:

1. **Abolfazl Hashemi** (Ph.D. student, UT Austin): “A Tensor Factorization Framework for Haplotype Assembly of Diploids and Polyploids”
2. **Nak-Seung Hyun** (PhD student, Georgia Tech): “Infinitesimal Modeling of Impulsive System: A Nonstandard Analysis Approach”
3. **Edward Lee** (PhD Student, Stanford University): “Space-Time Computing for Machine Learning”
4. **Wei Yu** (PhD Student, Carnegie Mellon University): “AdaDelay: Delay Adaptive Distributed Stochastic Optimization”



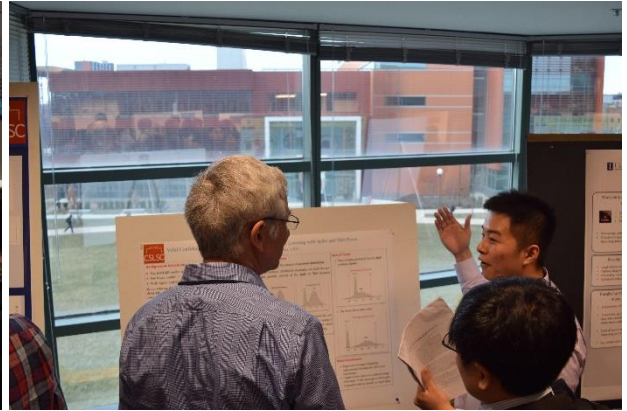
## UIUC Student Talks

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 17 talks distributed across the 4 sessions. The speakers were selected from a set of 55 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.



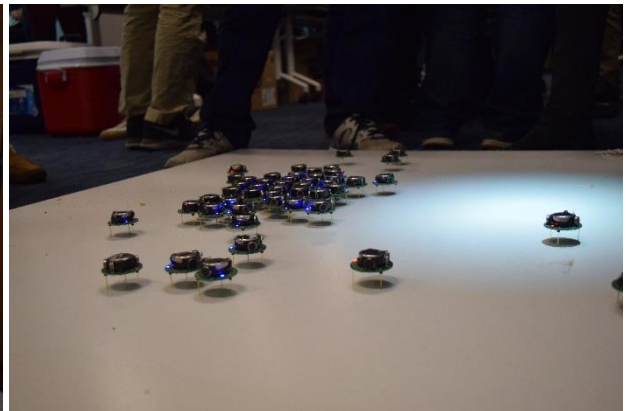
## Poster Session

The conference also included a poster session. The committee selected a total of 17 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

Introduced as a new venture this year, 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 15 robots, the details of which can be found on our [website](#). Two best demos were also conferred awards at the reception dinner.



## Graduate Student 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 14 companies including IBM Research, Intel, NVidia, and several national labs. It also saw the participation of over 150 graduate students seeking career and internship opportunities.



## Panel Discussions

This year also saw the introduction of the session-specific panel discussions. Each of the four sessions included a dedicated panel discussion, focused on answering targeted questions on emerging research trends and technological advancements in the field. The panels were also set to a specific theme according to the session and included professors from UIUC and the keynote speakers.





## Thanks to IEEE Control Systems Society

The continued generous support from the IEEE CSS has been instrumental in the growth of the CSL Student Conference and has played a significant role in the major success of the conference. The organizing committee of the 2017 CSL Student Conference wishes to thank the generous support extended to us through the IEEE CSS Outreach Fund.