

Dear Faculty, Students & Alums,

We hope you all had a great Thanksgiving. We had a very informative November with some great talks and seminars by some of our faculty. We have a few more events lined up for December before we take a break for the holidays. Please refer to the "Upcoming Events" section for more information. We appreciate you taking the time to read our newsletter. Please notify us if you wish to include your work in our next issue. Since this is our last edition for this year, we would like to take the time to wish you Happy Holidays and a prosperous New Year as you make that final push towards the end of this wonderful fall semester and towards a much needed break. We will be back in the Spring with more interesting updates and news.

PAST EVENT HIGHLIGHTS

November 07, 2019 : Streaming Graphs : A New Paradigm for Big data Streams - Prof. Vijay V.Raghavan from the University of Louisiana introduced the systems architecture of VASStream in terms of hardware and software modules.

November 21, 2019 : Challenges and Ideas for Making Live Programming More Practical by Hidehiko Masuhara - A talk presenting the live programming environment called Kanon, which automatically visualizes data structures created inside of a program. Discussions on interesting problems and solutions for making visualization natural to the programmers also took place.

November 22, 2019 : A new data structure for the epsilon-approximate range emptiness problem - A seminar on constructing space-efficient data structures for answering approximate membership queries, a well-studied problem and one that is increasingly important in the era of big data.

November 22, 2019: Faculty Meeting: Doctoral faculty members met to go through the academic records of all CS PhD students.

RECENT NEWS

Hannah Aizenman and Prof. Michael Grossberg receive 52K grant award for Matplotlib Development - Hannah Aizenman and Prof. Michael Grossberg were awarded a \$52,000 grant for Matplotlib Development. The grant is part of a \$250,000 award from Chan Zuckerberg to the Matplotlib Development team.

WEEKLY SEMINARS

DATA SCIENCE & APPLIED TOPOLOGY SEMINARS:

November 08, 2019 : Coding & Generative Design for 3D Printing - Laura Tallman -

"Mathgrl" Dr. Tallman took audiences on a 3D-printed tour of mathematical knots, tessellations, fractals, and polyhedra by using code and generative design to create parametric models that leverage randomness to achieve structural variety or even organic-looking behavior. The talk also discussed iterative design, the ability to "learn by failing," and the importance of being open to sharing that process, both in the 3D design process and in mathematical exploration.

November 15, 2019 : Iterated Integrals and Paths of Persistence Diagrams - Darrick Lee -

This talk introduced the path signature, considered its application to studying paths of persistence diagrams (persistence vineyards), and briefly discussed how Chen's perspective can lead to generalizations.

November 22, 2019 : A new data structure for the epsilon-approximate range emptiness problem - Paul Cesaretti -

This talk reviewed a new data structure along with its techniques and lower bounds that generalizes the functionality from single point queries to 1-D queries of intervals of length ϵL .

CATEGORY THEORY SEMINARS:

November 06, 2019 : Incremental Monoidal Categories for Speech - Dan Shiebler -

This seminar presented a characterization of formal grammars as monoidal categories, which are called monoidal grammars, and characterized automata that parse formal grammars as F-coalgebras.

November 13, 2019 : Higher-Order Categorical Logic: Limits - James Meyer -

Discussion on section 0.5 from the book Introduction to Higher-Order Categorical Logic by J. Lambek and P.J. Scott

November 20, 2019 : Posets, Lifting properties, and Completions - Raymond Puzio -

Ever since Dedekind, it has been known that special classes of posets can be characterized in terms of forbidden configurations. In talk discussed on how these characterizations result from lifting properties which, in turn, correspond to propositions in regular logic. This leads us to consider subcategories of morphisms between posets and idempotent completions

November 27, 2019 : Higher-Order Categorical Logic: Monads - James Meyer -

Discussion on section 0.6 from the book Introduction to Higher-Order Categorical Logic by J. Lambek and P.J. Scott

PUBLICATION

Hasan, M.R., Raja, A. & Bazzan, A. Auton. **"A Context-aware Convention Framework for Large-Scale Networks"** in Autonomous Agents and Multi-Agent Systems *DOI Link*

UPCOMING EVENTS

December 05, 2019 : Talk by Prof. Yde Venema - Professor Yde Venema from the University of Amsterdam will talk about Bi simulation In variance : An Approach via Tree Automata from 4:15pm -6:15pm at Room C198

December 06, 2019 : Google Information Session - Our alumni Brendan Collins will hold a software engineering interview workshop for our students from 2pm - 4pm at Room 4102 (Science Center)

December 16, 2019 : Alum Networking Event - We will have an alum networking event in the Skylight room between 5:40pm to 9:00pm. To all alums, & faculties of the CS and DS programs, please use the following link to RSVP for the event:
<https://www.eventbrite.com/e/79741339493>.



We look forward to sharing more monthly highlights of developments at the department with more exciting seminars, events, and important announcements. For more updates, check us out on Facebook, Twitter, and the department website!

HELP US MAKE YOU PROUD

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