Robbie Weber

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Teaching Interests

My interests are in teaching theoretical computer science courses across the curriculum (from introductory to advanced theory courses) and to different audiences (including non-majors courses). I am also interested in teaching other core courses with theoretical components, especially data structures.

Education

University of Washington Seattle, WA 2015-present
- Ph.D. Candidate (Graudation expected June 2020)
- Advisors: Anna Karlin and Shayan Oveis Gharan
- M.S. awarded December 2017

University of Illinois Urbana-Champaign, IL 2011–2015
- B.S. LAS in Math and Computer Science

Teaching Experience

Instructor: CSE 373 Data Structures and Algorithms (non-majors) Summer 2019
- 95 students
- Managed 9 TAs
- Overhauled coverage of algorithmic analysis to emphasize best/worst case and remove unnecessary technical distinctions between types of practical analyses.
- Explicitly incorporated problem-solving process in graph modeling problems.

Instructor: CSE 332 Data Structures and Parallelism (CSE majors) Summer 2018
- 30 students
- Mangaed 2 TAs
- Designed new exercises for theoretical aspects of course.
- Introduced reductions as a connection between data structures content and P/NP discussion.

Teaching Assistant: CSE 446 Machine Learning Spring 2019
Instructors: Kevin Jamieson and Anna Karlin
- Led design of discussion section materials (from scratch) shared by all teaching assistants.
- Managed course logistics

Teaching Assistant: CSE 373 Data Structures (non-majors) Spring 2018, Autumn 2018, Winter 2019
Instructors: Shrirang Mare (Autumn 18), Kasey Champion (Spring 18, Winter 19)
- Improved existing section materials as part of varying two-or-three-person teams
- Designed new homework problems (Autumn 18)
- Led course for one week while instructor was out of town, including three guest lectures (Spring 18)

Other Teaching Assistant Roles
In reverse chronological order
- At UW:
  - Theory of Computation (CSE 431) Instructor: Paul Beame
  - Introduction to Algorithms (CSE 421) Instructor: Shayan Oveis Gharan
  - Design and Analysis of Algorithms I (CSE 521) Instructor: Shayan Oveis Gharan
  - Algorithms and Computational Complexity (non-majors) (CSE 417) Instructor: Anna Karlin
  - Foundations of Computing I (CSE 311) Instructors: James Lee and Shayan Oveis Gharan
- At Illinois:
  - Algorithms and Models of Computation (1 semester) Instructors: Chandra Chekuri, Lenny Pitt
  - Discrete Structures (4 semesters) Instructors: various, primarily Margaret Fleck
  - Intro to Computer Science (2 semesters) Instructor: Lawrence Angrave

Research

- A Strategy-Proof Alternative to Round-Robin Subtournaments
  With Nick Liu, Jainul Vaghasia, and Sierra Wang
  Pre-print forthcoming
- A Simply Exponential Upper Bound on the Maximum Number of Stable Matchings
  With Anna Karlin and Shayan Oveis Gharan
  In Proceedings of 50$^{\text{th}}$ Annual ACM SIGACT Symposium on the Theory of Computing (STOC '18)
  `https://doi.org/10.1145/3188745.3188848`
- Embedded-Width: A Variant of Treewidth for Plane Graphs
  With Glencora Borradaile, Jeff Erickson, and Hung Le
  Pre-print. `https://arxiv.org/abs/1703.07532`

Talks

- Guest lectures for theory of computation (Autumn 2019), undergraduate algorithms (Winter 2019, Autumn 2019), graduate algorithms (Autumn 2018), and data structures (Spring 2018, Autumn 2019, Winter 2019).
- Invited talk at Highlights of Algorithms Conference (2019)
- Twelve minute Research talks at UW CSE colloquia
  - 2018 "A Simply Exponential Upper Bound on the Maximum Number of Stable Matchings" video
  - 2019 "A Strategy-Proof Alternative to Round-Robin Subtournaments" video

Mentoring

- Led research project with three undergraduates (Winter-Spring 2019)
  - Pre-print based on work forthcoming.
  - First research experience for all three undergraduates.
  - Two of the three undergraduates are now applying for graduate school.
- Led workshops on running office hours and leading discussion sections for new graduate students at university-wide TA conference (September 2019)
- Panelist for new CSE Ph.D. student orientation (Fall 2019)

Service

- Organizer for October 3, 2019 CSE colloquium
- Reader for Ph.D. student applications (2019)
- Scheduler for prospective Ph.D. student Visit Days (2017,2018)
- Organizer for theory group student reading group (Winter-Spring 2017)
- Volunteer tutor for CSE tutoring program (five quarters: Winter 2016-Spring 2017)
- Student host for two faculty interviews (organized student attendance for meeting with faculty candidate and moderated discussion)
- Organizer for CSE intramural softball team

Professional Development

- Attended CS Education reading group (beginning Fall 2018)
- Student Volunteer for SIGCSE 2019
- Completed (optional) CSE TA Training Winter 2017

Awards

UW CSE Bob Bandes TA Award (2018-19)

- One of three winners in 2019.
- First Ph.D. student honoree since 2015.