Curriculum Vitae

Dora Erdos   665 Commonwealth Avenue, Boston, MA, 02215
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Professional Experience

Senior Lecturer, Boston University, Computer Science   **2022-present**

Director of Undergraduate Studies, Boston University, Computer Science   **2021-present**

Undergraduate Program Director, Boston University, Computer Science   **2017- 2021**

Lecturer, Boston University, Computer Science   **2017-2022**

Postdoctoral Research Associate, Brown University, Computer Science   **2015 - 2016**
        Research in computational biology under Prof. Ben Raphael

Research Associate, Hungarian Academy of Science   **2008-2009**
        Institute for Computer Science and Control, Data Mining and Web Search Group

Intern, American Express, New York, NY   **Summer 2013**
Intern, Max Planck Institute for Informatics, Saarbrücken, Germany   **Summer 2012**

Education

PhD in Computer Science   **2010 - 2015**
        BOSTON UNIVERSITY, Boston, MA, USA.
        PhD Advisor: Prof. Evimaria Terzi
        Thesis title: Centrality Measures and Analyzing Dot-product Graphs.

Diploma (equivalent to BS + MS) in Mathematics   **2003 - 2008**
        EÖTVÖS LORÁND UNIVERSITY, Budapest, Hungary
        MS Advisor: Prof. András Frank
        Thesis title: Connection Between the Clar Number and the Coherent Cyclic Order.

Director of Undergraduate Studies   **2021-present**
Undergraduate Program Director   **2017- 2021**

- Responsible for **undergraduate advising** of CS majors, CS+X joint majors and minors (1500+ students). Work closely with departmental advising team, and CAS Advising.
- **BA/MS program**, student advising, admissions, faculty contact to GRS.
- Faculty contact to CAS and other academic units.
- Various administrative tasks.

  – Manage course proposals, HUB proposals and review.
  – Directed studies and honors approvals.
  – Program proposals and approvals, reviews, Bulletin edits.
  – Assist with course scheduling, teaching assignments.
  – Advise faculty on student related administrative matters.

- Tasks related to teaching in the department.

  – Identify curricular needs, advise on course offerings and extracurriculars.
  – Collect data on student outcomes, feedback from current students, alumni and faculty.
  – Assist faculty with matters related to their course management, individual student needs.
  – Mentor new faculty in teaching.

Curricular Development in Computer Science.

- Proposed and implemented **revision to the CS minor requirements**.   **2017-2018**

  – Found that with the former requirements many CS minors were underprepared to take the advanced-level CS courses required for the minor.
  – Revised the requirements for foundational courses to mitigate this issue.
  – Since the revision we find that students in the minor are coming out with stronger skills.

- Committee on designing and implementing a substantial **overhaul of the CS major requirements**.   **2019-present**

  – Collected strengths and shortcomings of the current curriculum; analyzed data on student outcomes, made observations based on my advising work, collected anecdotal evidence through extensive interviews with students and faculty.
  – Wrote the draft proposal, presented to the faculty on multiple occasions, collected extensive feedback from faculty.
  – Contacted individuals in computer science departments at other universities to learn about their experience in developing similar curricular changes to their programs.
  – The proposal has to date undergone multiple revisions and updates.

- Subcommittee on developing a new **Introduction to Computer Science course sequence** within the curriculum changes to the CS major.   **2019-present**

  – This subcommittee is part of the committee for revising the CS major requirements.
  – Recognized that the current 2-course sequence no longer serves all students in the major well. New majors come from a range of no prior exposure to CS to experienced programmers with extensive technology knowledge. We need to adapt the major to serve both ends of the spectrum.

- Proposed to revise the current 2-course sequence into 3 courses, but creating multiple entry points to accommodate students with various backgrounds in CS.
- Proposed and established **new joint majors** in Statistics+CS, Linguistics+CS, Physics+CS, Economics+CS. **2019-2023**
- Proposed and established **new BA/MS program** in Computer Science for the joint Mathematics+CS major. **2021-2022**
- **Co-developed new course** , CS365 Foundations of Data Science **2019**

Lecturer Merit Review Committee, member (head in 2024) **2022 - present**

Full-time Lecturer Search Committee, member **2022 - present**

CAS Academic Conduct liaison **2023 - present**

BU HUB Assessment Workshop, reviewer **June 2022**
Faculty Mentor, CS200 Applied Problem Solving **2021 - 2023**

- Student-led course on developing high performance algorithms.
- Mentor and support the student-instructors in preparing material, teaching the classes, interaction with students.

Kilachand honors thesis advisor (2019), various directed studies advisors.

Teaching

CS330 Analysis of Algorithms **Spring 2017 - present**

- Required course in the CS and CS+X joint majors.
- Taught CS330 every semester. 200-300 students per semester.
- Most advanced required theoretical course. The content is regarded as difficult by students, but worthwhile to put the effort in. I have worked over the semesters to make it more approachable.
  - Improved my presentation to make it more intuitive. Developed a good set of examples and applications to give intuition on how and why certain algorithms work.
  - Switched from longer, bi-weekly to shorter, weekly assignments. Students have reported that with weekly assignments they feel they work very hard, but it helps them tremendously with following the material.
  - Use TopHat to foster in-class participation and understanding.
- CS330 is a large course that has two sections. It has been co-taught by two instructors (every other semester). This was the first course in CS to adopt the co-teaching model. It worked out so well that now it is being (successfully) applied to multiple of our large courses.
- I am the constant faculty member in CS330, while my teaching partners changes by semester. I was able to forge good working relationships with all of my co-instructors. Was able to adjust to their different styles while also maintaining the course structure that I have developed over the years.

CS365 Foundations of Data Science   **Fall 2019, Spring 2021**

- Co-developed this course from scratch.
- had 90 students per semester, I taught the initial offering.
- CS365 is a prerequisite to many electives on data-related topics in CS.
- Covers the main concepts and technical tools to understanding data. This includes topics in statistics, various mathematical tools, data metrics, most common algorithms, data management.

GRS CS630 Graduate Algorithms   **Fall 2022, Fall 2024**

- Algorithms course for MS and BA/MS students, 80-150 students.
- Advanced level course that builds on the undergraduate algorithms curriculum.
- Students come from a wide spectrum of algorithms background, successfully navigated catering to the diverse needs of this population.

CS131 Combinatoric Structures   **Spring and Summer 2019**

- Freshman course in discrete mathematics. Taught 150 students in the spring.
- The course teaches the foundations of "computational thinking". I specifically requested to teach this course to get a better insight on how students master these concepts that are fundamental to computer science. This experience has informed my work both in teaching more advanced courses (e.g., CS330), advising students and in developing the revision to the CS curriculum.

CS565 Algorithmic Data Mining   **Fall 2018, SPring 2025**

- Elective course for seniors and graduate students, taught 50 students.
- Algorithms concepts to find patterns in large data sets. Covers both traditional algorithms as well as state-of-the-art developments in the field.

Teaching Fellow
Boston University (various courses related to algorithms)	**2010-2015**
Eötvös University (graph theory, algorithms)	**2007-2009**

Honors and awards

Boston University DHI Research Incubation Award   **2018**
19K research grant
Co-PI: Prof. Jessica Kramer, University of Florida (then at BU Sergeant College)

Research Excellence Award, BU Dept. of Computer Science   **2014**

Hariri Award for Innovative Computing Models, Algorithms, and Systems **2011**
Presidential Fellowship **2010 - 2011**
  fellowship for promising PhD students at Boston University.

PUBLICATIONS

Refereed journal publications

J2. Dora Erdos, András Frank, Krisztián Kun, *Sink-stable Sets of Digraphs*, SIAM journal of Discrete Mathematics **(SIDMA)**, vol. 28, Issue 4, pp. 1651 – 1674, 2014

J1. Dora Erdos, Rainer Gemulla, Evimaria Terzi, *Reconstructing Graphs from Neighborhood Data*, ACM Transactions on Knowledge Discovery from Data **(TKDD)**, Volume 8 Issue 4, Article No. 23, ACM New York, NY, USA, August 2014

Refereed conference publications

C10. Charalampos Mavroforakis, **Dora Erdos**, Mark Crovella, Evimaria Terzi, *Active Positive-Definite Matrix Completion*, SIAM Data Mining SDM 2017

C9. Sanaz Bahargam, **Dora Erdos**, Azer Bestavros, Evimaria Terzi,*Personalized Education; Solving a Group Formation and Scheduling Problem for Educational Content*, Educational Data Mining **EDM** 2015, Madrid, Spain

C8. Dora Erdos, Vatche Ishakian, Azer Bestavros, Evimaria Terzi, *A Divide-and-Conquer Algorithm for Betweenness Centrality*, SIAM Data Mining Conference, **SDM**, 2015, Vancouver, Canada

C7. Dora Erdos, Pauli Miettinen, *Walk'N'Merge: A ScalableAlgorithm for Boolean Tensor Factorization*, IEEE International Conference on Data Mining, **(ICDM)**, 2013, Dallas, TX, December 2013

C6. Dora Erdos, Pauli Miettinen, *Discovering Facts with Boolean Tensor Tucker Decomposition*, Conference on Information and Knowledge Management **(CIKM)**, San Francisco, CA, USA, October 2013

C5. Dora Erdos, Vatche Ishakian, Azer Bestavros, Evimaria Terzi, *Repetition-Aware Content Placement in Navigational Networks*, ACM International Conference on Knowledge Discovery and Data Mining **(SIGKDD)**, Chicago, IL, USA, August, 2013

C4. Dora Erdos, Rainer Gemulla, Evimaria Terzi, *Reconstructing Graphs from Neighborhood Data*, IEEE International Conference on Data Mining **(ICDM)** Brussels, Belgium, December 2012

C3. Dora Erdos, Vatche Ishakian, Andrei Lapets, Evimaria Terzi, Azer Bestavros, *The Filter Placement Problem and its Application to Minimizing Information Multiplicity*, International Conference on Very Large DataBases **(VLDB)**, Istanbul, Turkey, August 2012

C2. Vatche Ishakian, **Dora Erdos**, Evimaria Terzi, Azer Bestavros, *A Framework for the Evaluation and Management of Network Centrality*, SIAM Data Mining Conference **(SDM)**, Anaheim, CA, April, 2012

C1. Dora Erdos, Zsolt Fekete, András Lukács, *Visualized subgraph search*, IEEE Visual Analytics Science and Technology **(VAST)**, Atlantic City, PA, USA, October, 2009

Preprints

P2. Dora Erdos, Vatche Ishakian, Azer Bestavros, and Evimaria Terzi, A Divide-and-Conquer Algorithm for Betweenness Centrality, arXiv:1406.4173

P1. Dora Erdos, Pauli Miettinen, Scalable Boolean Tensor Factorizations using Random Walks, arXiv:1310.4843

Referee

PC member: SIGKDD 2014, ECML/PKDD 2014, CIKM 2014, SDM 2015, SIGKDD 2015, CIKM 2015, SDM 2016, WWW 2016, SIGKDD 2016, ECML/PKDD 2016, CIKM 2016, SDM 2017, SIGKDD 2018, CIKM18, ECML/PKDD 2018, SDM 2019, ECML/PKDD 2019, IAAA 2019, SIGKDD 2019.
Journal reviewer: Mathematical Communications, Journal of Combinatorial Optimization, Data Mining and Knowledge Discovery, IEEE Big Data.

Languages

Hungarian (native), English (fluent), German (fluent), Dutch (good)