Hoa T. Vu

CONTACT INFORMATION

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EMPLOYMENT AND EDUCATION

- **San Diego State University** (2019-present)
  Assistant Professor
- **Boston College** (2018-2019)
  Postdoctoral Research Fellow
  Advisor: Prof. Hsin-Hao Su
- **University of Massachusetts Amherst**
  M.S. and Ph.D., Computer Science (2011-2018)
  Advisor: Prof. Andrew McGregor
- **Ohio State University**
  B.S., Computer Science and Mathematics (2007-2011)

RESEARCH INTEREST

Theoretical computer science. Streaming, distributed, and parallel algorithms. Some topics include graph algorithms, approximation algorithms, sketching algorithms, algorithms for machine learning & data summarization, and lower bounds.

TEACHING EXPERIENCE

- **San Diego State University**
  - Parallel algorithms CS 662 (Spring 2022)
  - Combinatorial algorithms CS 660 (Fall 2019, Fall 2020, Spring 2021, Fall 2021)
  - Algorithms and their analysis CS 560 and CS 460 (Fall 2019, Fall 2021, Spring 2022)
- **Boston College**
  - Randomness and Computation CSCI 2244 (Spring 2019)
- **University of Massachusetts Amherst**
  - Teaching Assistant for Advanced Algorithms Comp Sci 611 (Fall 2017, Fall 2018, Spring 2018)

HONORS AND AWARDS

- Workshop on Data Summarization 2018 Travel Award, The University of Warwick
- PODS/SIGMOD 2016 Travel Award
- Computer Science Scholarship for Academic Achievement, Ohio State University (2008-2009)

WORK EXPERIENCE

- Adobe Research Internship (Summer, 2016).
  Topic: Heavy hitters algorithms for high dimensional data streams.
  Mentors: Branislav Kveton and Muthu Muthukrishnan.

PUBLICATIONS

(Author names are in **alphabetical order** per tradition in theoretical computer science)

Journal Publications

- Andrew McGregor and Hoa T. Vu.
  Better Streaming Algorithms for the Maximum Coverage Problem.
  In Theory of Computing Systems.

Refereed Conference Publications

- David Harris, Hsin-Hao Su, and Hoa T. Vu. *On the Locality of Approximate Nash-Williams Forest Decomposition*. In Proceedings of the 40th ACM Symposium on Principles of Distributed Computing (PODC) 2021.
- Andrew McGregor, David Tench, and Hoa T. Vu. *Maximum Coverage in the Data Stream Model: Parameterized and Generalized*. In Proceedings of the 24th International Conference on Database Theory (ICDT) 2021.
- Hsin-Hao Su and Hoa T. Vu. *Distributed Dense Subgraph Detection and Low Outdegree Orientation.* In Proceedings of the 34th International Symposium on Distributed Computing (DISC) 2020.
- Hsin-Hao Su and Hoa T. Vu. *Distributed Data Summarization in Well-Connected Networks*. In Proceedings of the 33rd International Symposium on Distributed Computing (DISC) 2019.
- Hsin-Hao Su and Hoa T. Vu. *Towards the Locality of Vizing's Theorem.* In Proceedings of the 51st Annual ACM Symposium on the Theory of Computing (STOC) 2019.
- Branislav Kveton, Muthu Muthukrishnan, Hoa T. Vu, and Yikun Xian. *Finding Subcube Heavy Hitters in Analytics Data Streams.* In Proceedings of The Web Conference (WWW) 2018.
- Andrew McGregor and Hoa T. Vu. *Better Streaming Algorithms for the Maximum Coverage Problem.* In Proceedings of the 20th International Conference on Database Theory (ICDT) 2017. Invited and accepted to the special issue for ICDT best papers.
- Andrew McGregor, Sofya Vorotnikova, and Hoa T. Vu. *Better Algorithms for Counting Triangles in Data Streams.* In Proceedings of the 35th ACM Symposium on Principles of Database Systems (PODS) 2016.
- Andrew McGregor, David Tench, Sofya Vorotnikova, and Hoa T. Vu. *Densest Subgraph in Dynamic Graph Streams.* In Proceedings of the 40th Intl. Symposium on Mathematical Foundations of Computer Science (MFCS) 2015.
- Andrew McGregor and Hoa T. Vu. *Evaluating Bayesian Networks via Data Streams.* In Proceedings of the 21st Annual Intl. Computing and Combinatorics Conference (COCOON) 2015.
- Michael A. Bender, Samuel McCauley, Andrew McGregor, Shikha Singh, and Hoa T. Vu. *Run Generation Revisited: What Goes Up May or May Not Come Down.* In Proceedings of the 26th Intl. Symposium on Algorithms and Computation (ISAAC) 2015.
- Hoa T. Vu, Clifton Carey, and Sridhar Mahadevan. *Manifold Warping: Manifold Alignment over Time.* In Proceedings of 26th AAAI Conference on Artificial Intelligence (AAAI) 2012.

MANUSCRIPTS, THESIS & TECHNICAL REPORTS

- Hoa T. Vu. *Streaming Algorithms for Maximum Satisfiability.* Manuscript.
- Hoa T. Vu. *Data Stream Algorithms for Large Graphs and High Dimensional Data.* Doctoral Dissertation.

- C. Wang, B. Liu, S. Mahadevan, and Hoa T. Vu. *Sparse Manifold Alignment.* Technical Report UM-CS-2012-030

CONFERENCE AND INVITED TALKS

- *Distributed Dense Subgraph Detection and Low Outdegree Orientation*
  International Symposium on Distributed Computing (DISC) 2020
- *Towards the Locality of Vizing's Theorem*
  MIT Theory of Distributed Systems Seminar
- *Finding Subcube Heavy Hitters in Analytics Data Streams*
  The Web Conference (WWW) 2018
- *Better Streaming Algorithms for the Maximum Coverage Problem*
  International Conference on Database Theory (ICDT) 2017
  Workshop on Data Summarization 2018
  Dartmouth College Computer Science Theory Seminar
- *Better Algorithms for Counting Triangles in Data Streams*
  ACM Symposium on Principles of Database Systems (PODS) 2016
- *Evaluating Bayesian Networks via Data Streams*
  Annual International Computing and Combinatorics Conference (COCOON) 2015
- *Manifold Warping: Manifold Alignment over Time*
  AAAI Conference on Artificial Intelligence (AAAI) 2012

PROFESSIONAL ACTIVITIES

- Journal review
  - 2021: Network Science, Distributed Computing
  - 2019: Journal of Combinatorial Optimization
  - 2018: IEEE Transactions on Knowledge and Data Engineering
- Conference subreview
  - 2022: VLDB
  - 2021: ICALP, ESA, APPROX, DISC, FOCS, PODS, SODA
  - 2020: SODA, FOCS
  - 2019: APPROX, ESA, PODC, SODA
  - 2018: SWAT, ESA, SODA
  - 2016: PODS
  - 2015: ESA
  - 2014: SODA

OTHER SKILLS

- Programming language: C/C++, Java, Python, Matlab
- Version control: Git, SVN