Justin DeBenedetto

Department of Computer Science and Engineering
Notre Dame, IN 46556 U.S.A.

Education

Expected 2021 — PhD in Computer Science, University of Notre Dame
- Advisor: Dr. David Chiang

2019 — MS in Computer Science, University of Notre Dame
- Advisor: Dr. David Chiang
- Thesis: Multiset and DAG automata for abstract meaning representation

2015 — MA in Mathematics, Wake Forest University
- Advisor: Dr. Jeremy Rouse
- Thesis: Quadratic forms representing all integers coprime to 3

2013 — BS in Mathematics, Computer Science, Wake Forest University
- Math Honors Advisor: Dr. Jeremy Rouse
  - Thesis: Quadratic forms representing all primes
- CS Honors Advisor: Dr. Daniel Cañas
  - Thesis: Tracing concurrent processes with EZIPC

Teaching Experience

2020 — Guest lectures for *Engineering Discernment*, University of Notre Dame
- Taught four lectures
- Helped design activities to introduce students to Computer Science

2020 — Instructor of Record for *Elements of Computing I*, University of Notre Dame
- Designed and taught course for Data Science Minor
- Sole instructor for 35 students with 1 TA
- 4.7/5.0 course instructor feedback (CIF) composite score

2019 — Guest lecture for *Natural Language Processing*, University of Notre Dame

2017 — Teaching Assistant for *Natural Language Processing*, University of Notre Dame
- Held office hours
- Graded assignments
- Gave guest lecture

2016 — Teaching Assistant for *Theory of Computing*, University of Notre Dame
- Held office hours
- Helped write and grade assignments

2015   Teaching Assistant for *Mobile Computing*, University of Notre Dame
- Held office hours
- Graded assignments

Summer 2014   Instructor of *Cryptography, Codebreaking, and the Mathematics of Spying*, Duke TIP Summer Studies, University of Georgia, Athens
- Designed and taught course
- Course met 40 hours per week for 3 weeks

Summer 2014   Instructor of *Pure Math: Elements of Number Theory*, Duke TIP Summer Studies, Wake Forest University
- Designed and taught course
- Course met 40 hours per week for 3 weeks

Summer 2013   Teaching Assistant for *Cryptography, Codebreaking, and the Mathematics of Spying*, Duke TIP Summer Studies, Davidson College
- Aided instructor during class time
- Ran nightly review sessions on weekdays

Research Experience

2015-present   Graduate Research Assistant, University of Notre Dame
- Conducted research in Dr. David Chiang's NLP lab

Summer 2012   Research Experience for Undergraduates (REU) in Computer Science: Dataflow Analysis, Fairfield University
- Worked in a team of three students to write a dataflow analysis tool
- Funded by NSF

Summer 2011   Wake Forest Research Fellowship in Number Theory, Wake Forest University
- Conducted research under the guidance of Dr. Jeremy Rouse
- Developed theory and code to successfully find a $60,000$ digit prime number of a particular form

Other Employment

2013-2015   Graduate Student Assistant, Institutional Research, Wake Forest University
2013-2015   Mathematics Tutor, Wake Forest University
2012-2013   Computer Science Tutor, Wake Forest University

Publications *&* presentations

PUBLICATIONS

2020   Justin DeBenedetto and David Chiang. Representing unordered data using complex-weighted multiset automata. *In Proc. International Conference on Machine Learning (ICML).* 2020.

2018   Justin DeBenedetto and David Chiang. Algorithms and training for weighted multiset automata and regular expressions. *In Proc. Conference on Implementation and Applications of Automata (CIAA).* 2018.

2018   Antonios Anastasopoulos, Marika Lekakou, Josep Quer, Eleni Zimianiti, Justin DeBenedetto, and David Chiang. Part-of-speech tagging on an endangered language: a parallel Griko-Italian resource. *In Proc. International Conference on Computational Linguistics (COLING).* 2018.

2017   Justin DeBenedetto, Stephen Hutt, Louis Faust, Anqing Liu, Nathaniel Kremer-Herman. Placating Plato with plates of pasta: An interactive tool for teaching the dining philosophers problem. *Frontiers in Education Conference (FIE).* 2017.

2016   Justin DeBenedetto and Marina Blanton. Optimizing secure statistical computations with PICCO. *arXiv.* 2016.

2015   Justin DeBenedetto and Jeremy Rouse. Quadratic forms representing all integers coprime to 3. *The Ramanujan Journal.* 2015.

2014   Justin DeBenedetto. Quadratic forms representing all primes. *Involve. 2014.*

2012   Justin DeBenedetto and Jeremy Rouse. A $60,000$ digit prime number of the form $x^2 + x + 41$. *arXiv.* 2012.

PRESENTATIONS

2020   *Representing unordered data using complex-weighted multiset automata* talk presented at Thirty-seventh International Conference on Machine Learning (ICML), Online (moved from Vienna, Austria)

2018   *Analyzing the rhetoric of St. Augustine's homilies* talk presented at Digital Humanities at ND Lightning Talks, University of Notre Dame, IN

2018   *Algorithms and training for weighted multiset automata and regular expressions* talk presented at 23rd International Conference on Implementation and Applications of Automata (CIAA), Charlottetown, Prince Edward Island, Canada

2013   *Quadratic forms representing all primes* talk presented at Southeast Regional Meeting on Numbers (SERMON) at High Point University, NC

2013   *Wyvern: a dataflow analysis framework* poster presentation at Joint Mathematics Meetings, San Diego, CA

2012   *A $60,000$ digit prime number of the form $x^2 + x + 41$* poster presentation at Joint Mathematics Meetings, Boston, MA

Honors *&* awards

2020	Striving for Excellence in Teaching Certificate, Kaneb Center, University of Notre Dame
2019	Online College Teaching Certificate, Kaneb Center, University of Notre Dame
2017	Outstanding Graduate Student Teaching Award, University of Notre Dame
2015-present	Richard and Peggy Notebaert Premier Fellowship, University of Notre Dame
2013	John Y. Philips Prize in Mathematics, Wake Forest University
2012	Kenneth Tyson Raynor Scholar, Wake Forest University
2010-2013	Dean's List, Wake Forest University

Leadership

2018	Organizing committee for Midwest Speech and Language Days
2019-2020	Vice President of Fellowship for Catholic Graduate Community at University of Notre Dame
2012-2013	Armorer for Wake Forest Club Fencing
2011-2013	Peer Minister for Wake Forest Catholic Community

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