

CURRICULUM VITAE

PERSONAL DATA

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Citizenship: USA



EDUCATION

- 10/2017 – 12/2020 **Masters of Science (Mathematics)**
Georg-August-Universität Göttingen. Göttingen, Germany
Specialization: Algebraic Number Theory
Thesis: *Algebraic approaches to a family of Thue equations and associated units*
Advisors: Prof. Dr. Preda Mihailescu, Prof. Dr. Damaris Schindler
Grade: 1,5 (equivalent to 3.5 GPA)
- 09/2015 – 04/2017 **Bachelors of Science (Mathematics)**
California State Polytechnic University Pomona. Pomona CA, USA
Sub-option: Pure Mathematics
Areas of focus: Topology, Real Analysis
Honors: Dean's list, President's list
Grade: 3.62 GPA, *cum laude* (equivalent to 1,4)
- 02/2010 – 06/2015 **Associates of Science (Mathematics)**
Associates of Arts (Engineering and Technology)
Associates of Arts (Humanities)
Associates of Arts (Natural Sciences)
Pasadena City College. Pasadena CA, USA
Honors: Dean's list
- 01/1995 – 03/2002 **Undergraduate Studies (Computer Science)**
New Mexico State University. Las Cruces NM, USA
Early Admission prior to high school graduation
Honors: Crimson Scholar
Degree completed: None
- 01/1996 – 12/1999 **High School**
Home-schooled. Las Cruces NM, USA
Teacher: Marta Reece, Instructor of Mathematics at NMSU

RESEARCH EXPERIENCE

- 04/2020 – ongoing **Further Research during Graduate Studies**
Georg-August-Universität Göttingen. Göttingen, Germany
Topic: Totally positive non-square units of cyclotomic fields
• Further investigation of a conjecture on their absence for Sophie-Germain primes
Mentor: Prof. Dr. Preda Mihailescu

- 04/2019 – 09/2019 **University Research Assistant**
 Georg-August-Universität Göttingen. Göttingen, Germany
 Topic: Temporal-spatial visualization of LinTim planning data
- wxPython framework to run Bokeh visualization as a standalone desktop application
 - Bokeh explorations of timetables and routes, incorporating map views of geodata
- Supervisor: Dr. Alexander Schiewe
- 06/2016 – 04/2017 **Undergraduate Research**
 California State Polytechnic University. Pomona CA, USA
 Topic: Extension of the Simon invariant on embeddings of K_p graphs.
- Absence of invariant with chosen symmetry on several prime numbers of vertices
 - Existence of such invariant for K_{13}
 - Existence of achiral embeddings of K_{13} with each odd value of the found invariant
- Mentor: Dr. Robin Wilson
- 06/2000 – 08/2000 **Summer Undergraduate Research Fellowship**
 Jet Propulsion Laboratory. La Cañada CA, USA
 Topic: Mars rover reliability simulation
- Translated reliability model from FORTRAN 77 to C and Java
 - Scaled the model up to handle multiple gigabyte data sets
 - Used in the design of the Mars rovers Spirit and Opportunity
- Supervisor: Robert Shishko

CONFERENCES AND PRESENTATIONS

- 01/2021 TMWYF Ongoing Lecture Series
 University of South Alabama
 Zoom talk, *Algebraic units that pretend to be squares*
- 11/2020 Invited lecture
 Physics research group, University of Massachusetts Boston
 Zoom talk, *Kronecker-Weber theorem: an intuition for proof methods in algebraic number theory*
- 02/2020 Summer School Online Colloquium
 scholar.social, Online
 Zoom talk, *Algebraic numbers and dividing the circle – the Kronecker-Weber theorem*
 Available at: <https://summerschool.scholar.social/>
- 05/2017 SIAM Student Research Conference
 California State Polytechnic University. Pomona CA, USA
 Oral presentation, *Extension of the Simon invariant on K_p graphs*
 Available at: <https://youtu.be/uPG6gV4BSe4>
- 05/2017 12th Annual Science Research Symposium
 California State Polytechnic University. Pomona CA, USA
 Poster presentation, *Extension of the Simon invariant on K_p graphs*
- 04/2017 Western Regional Honors Conference
 University of Southern Oregon. Ashland OR, USA

Poster presentation, *Extension of the Simon invariant on K_p graphs*
Awarded 2nd place in Sciences

- 03/2017 Undergraduate Research Conference
California State Polytechnic University. Pomona CA, USA
Oral presentation, *Extension of the Simon invariant on K_p graphs*
- 04/2013 Invited lecture
Introduction to Astronomy, Pasadena City College. Pasadena CA, USA
Course instructor: Dr. John Sepikas
Topic: *Introduction to Computer Programming for Astronomy*

PROFESSIONAL TEACHING AND SOFTWARE EXPERIENCE

- 04/2020 – 09/2020 **University Teaching Assistant**
Georg-August-Universität Göttingen. Göttingen, Germany
Course: Geometry
- Grade student homeworks as PDFs
 - Weekly office hours over BigBlueButton
- 01/2016 – 04/2017 **Student Teaching Assistant**
California State Polytechnic University. Pomona CA, USA
Courses: Undergraduate Real Analysis 1 and 2,
Introduction to Logic
- Graded proofs for all student homework
 - Provide extensive feedback on proof technique
 - Assist student groups writing proofs on the board
 - Provide feedback on written proofs during class sessions
 - Provide written feedback on notation and logical argument
 - Upon request, wrote a guide to proof feedback for future graders
- 06/2016 – 04/2017 **Lecture Transcription**
California State Polytechnic University Pomona. Pomona CA, USA
- Take detailed and complete notes during each lecture
 - Upload notes within a day of each lecture
- 09/2012 – 09/2013 **Private Tutor, Mathematics**
Self Employed. Pasadena CA, USA
- Nominated to departmental tutor list at Pasadena City College
 - Tutored all levels through calculus
 - Specialized in tutoring students with disabilities
- 09/2000 – 02/2001 **Student Co-op Employee**
Jet Propulsion Laboratory. La Cañada CA, USA
- Wrote reference implementations of scheduling algorithms
 - Implemented tests across a Beowulf cluster

HONORS AND SCHOLARSHIPS

- 2017 Bachelor's degree awarded *cum laude*
- 2016 President's List, California State Polytechnic University Pomona
- 2016 Keith Sun Kim Scholarship
- 2015, 2016, 2017 Dean's List, California State Polytechnic University Pomona
- 2015, 2016, 2017 Kellogg Honors College membership
- 2015 Graduation with Administrative Honors, Pasadena City College
- 2013, 2014, 2015 Dean's Honors, Pasadena City College

PUBLICATIONS AND PROJECTS

10/2020

OEIS Sequence

Primes q for which in the q -cyclotomic field the 2-dimension of the group of circular units over the group of totally positive circular units is not maximal.

Available at: <http://oeis.org/A338023>

06/2016 – 09/2016

OpenStreetMap of Campus

California State Polytechnic University, Pomona CA, USA

- From bare outlines to all buildings, green spaces, and paths

Available at: <http://osm.org/go/TaAfKgFCZ->

ADDITIONAL SKILLS

Computer Skills

LaTeX, GeoGebra, Big Blue Button
Programming (C, Matlab, Python, sagemath / PARI, etc.)
Linux (use and administration)

Languages

English (native)
German (B1 comprehension, A2 use)

HOBBIES AND INTERESTS

Information Security, Martial Arts (Bujinkan), Hiking,
Typography, Nutrition