

COLTON GRAINGER

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Education

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|--------------|---|--------------|
| 2018–Present | Ph.D. Student in Mathematics, University of Colorado
On leave of absence beginning Spring 2020. | Boulder, CO |
| 2012–2016 | B.S. in Mathematics-Physics, The College of Idaho
Senior Study: Galois Theory for Differential Equations.
Advised by Jonny Comes. | Caldwell, ID |

Projects

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| May 2020 | RDA Image Archive
I developed the <code>rda-image-archive</code> to catalog a ~60TB collection of images for NCAR's Research Data Archive by establishing a common description framework for image metadata and providing bulk, programmatic access to image subsets. [code] |
| Jul 2019 | Towards Categorical Metadata
I developed a metadata schema and mathematical framework for iteratively refining the metadata available for meteorological logbooks. [code] |
| Nov 2018 | Characterizing Neural Networks
I presented Guss and Salakhutdinov's application of topological data analysis to machine learning for StatOptML. [code] |

Experience

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| 2019–2020 | Student Visitor, Data Engineering and Curation Section, NCAR
Developed the <code>rda-image-archive</code> python package. Mentored by Thomas Cram, Matt Mayernick. [Python, SQLAlchemy] | Boulder, CO |
| 2019 Summer | Software Engineering Intern, NCAR
Designed an image repository for historical weather data (e.g., marine logbooks from 1870 to 1950) to support climate reanalyses. Funded by SIParCS. Mentored by Thomas Cram, Matt Mayernick. [Python, MySQL] | Boulder, CO |
| 2017–2018 | Social Work Intern, United Way of Thurston County
Supervised volunteers, interns, and work-studies at a 24-hour shelter for families experiencing homelessness. Funded by CNCS. Mentored by Lindsay Fujimoto, Abigail Shirk. [java, community organization] | Olympia, WA |
| 2016–2017 | Social Work Intern, YMCA of Greater Houston
Managed data for the preferred communities refugee medical assistance program. Funded by TX-ESC. Mentored by Shaoli Bhadra, Danielle Bolks. [SQL, health records, immigration policy] | Houston, TX |

Teaching

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|-----------|---|------------------------|
| ↘ | Introduction to Statistics [MATH 2510] | University of Colorado |
| Fall 2019 | Instructor for 1 section, 20 students. Led by Al Bronstein. | |

📄 Calculus I [MATH 1300]

University of Colorado

Spring 2019 Teaching Assistant for 4 sections, 120 students. Led by Lee Roberson.

Fall 2018 Teaching Assistant for 3 sections, 80 students. Led by Lee Roberson.

📄 BVSD Mentoring Program [code]

Boulder, CO

Spring 2020 Mentor in scientific computing [git, pandas, numpy] for Suchit Sharma.

Relevant Coursework

2020 Extracurricular

Java Project Management [self-study, stg-tud.github.io/eise]

Yoga Teacher Training & Philosophy [Vajra Romano, Christina Lagdameo, RYS-200]

2018–2019 Graduate

University of Colorado

Analysis [Judith Packer, Sergei Kuznetsov, MATH 6310]

Differential Geometry I [Jeanne Clelland, MATH 6230]

Topology I [Carla Farsi, MATH 6210]

Topology II [Agnès Beaudry, MATH 6220]

Algebra I [Nat Thiem, MATH 6130]

Algebra II [Richard M. Green, MATH 6140]

Theory of Groups [Peter Mayr, MATH 6270]

2017–2018 Interim

University of Idaho

Probability Theory [Chris Remien, MATH 451]

Numerical Analysis [Lyudmyla Barannyk, MATH 428]

2012–2016 Undergraduate

The College of Idaho

Real Analysis [Jonny Comes, MAT-451]

Complex Analysis [Dave Rosoff, MAT-431]

Electromagnetism [James Dull, PHY-330]

Thermal Physics [James Dull, PHY-313]

Quantum Physics [Kathryn Devine, PHY-400]

Topology [Dave Rosoff, MAT-441]

Algebraic Structures [Robin Cruz, MAT-461]

Awards

2012–2016 Heritage Scholarship

The College of Idaho

Full-tuition merit scholarship for undergraduate studies. [Awarded to 11 of 287 first-year students in 2012.]