THOMAS BRENDAN COHN

(734)-780-1597 ⋄ cohnt@umich.edu ⋄ http://tommycohn.com

EDUCATION

UNIVERSITY OF MICHIGAN, Ann Arbor *September 2017 - Present*
College of Engineering – Computer Science BSE (Expected May 2022)
College of LSA – Honors Mathematics BS (Expected May 2022)

- Engineering Honors Program
- Dean's List
- Tau Beta Pi Honor Society
- Phi Kappa Phi Honor Society
- Bell Scholarship
- Regents Merit Scholarship
- Raab Family Scholarship
- Wanda W. Lincoln Scholarship

Minor in Statistics, Minor in Music
GPA: 3.68/4.00

EXPERIENCE

LABORATORY FOR PROGRESS, University of Michigan *May 2016 - Present*
Research Assistant to Professor Chad Jenkins
Major Projects:

- Manifold Learning via Nonparametric Belief Propagation
  - Accurately infer tangent spaces of high dimensional data on a manifold
  - Denoise neighborhood graph to find an accurate embedding
  - Published as **TSBP: Tangent Space Belief Propagation for Manifold Learning**. *Robotics and Automation: Letters.* 2020; 5.4; 6694-6701
- Coordinate Chart Particle Filter for Deformable Object Pose Estimation
  - Learn a latent representation of deformable objects using manifold learning
  - Coordinate chart enables efficient particle fitler convergence for localization
- Particle-Based Localization and Grasping of Grocery Bags
  - Detect handles in camera feed using SVM trained on Histogram of Oriented Gradients
  - Triangulate 3D location by moving robot while running 2-stage particle filter

COLLEGE OF ENGINEERING, University of Michigan *January 2019 - May 2020*
Instructional Aide – ENGR 100-250 (Introduction to Microprocessor Computing Systems)

- Hold office hours, teach lab sections, help students with lab work and final projects
- Grade homework, lab assignments, and exams

Michigan Marching Band, University of Michigan *January 2017 - Present*
Member; Rank Leader since December 2019

- In charge of the cymbal section of the drumline
- Rehearse for 20+ hours per week August-December

Green Ladder Technologies LLC *May 2015 - August 2015*
Contracted Developer

- Programmed embedded controllers for in vitro fertilization clinic air quality monitoring systems

SKILLS

- Programming Languages: Proficient in C++, Python, and JavaScript; familiar with C, Matlab
- Computing Tools: Proficient in Git, Bash, ROS, and LaTeX
- Mathematics: Graduate-level coursework in probability theory, graph theory, linear algebra, topology, differentiable manifolds, Riemannian geometry, and convex optimization. Honors coursework in abstract algebra.