Daniel Morton

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EDUCATION

Stanford University **Expected: June 2023**
M.S. Mechanical Engineering (Robotics + AI) – GPA: 4.00 *Stanford, CA*

Cornell University **May 2021**
B.S. Mechanical and Aerospace Engineering – GPA: 4.14 – Summa Cum Laude *Ithaca, NY*

PROFESSIONAL EXPERIENCE

Medra **Apr. 2022 – Sep. 2022**
Robotics Software Engineer *San Francisco, CA*

- Key contributor to the robotics software stack, forming the core infrastructure for defining and executing the robot's behavior. Incorporated state machines, CV, motion planning, logging, debugging, and more
- Formed the MVP for delivery to the first customer in an accelerated timeframe. As employee #2, I saw the process through from the very beginning to a fully viable product in under six months

NASA Marshall Space Flight Center **Jun. 2020 – Aug. 2020**
Intern, Propulsion Research & Technology *Huntsville, AL / Remote*

- Conceptual modeling of a nuclear-thermal airbreathing vehicle launched from a magnetically-accelerated track
- Developed programs to create, analyze, and optimize 3D-printed heat exchangers

Boeing **May 2019 – Aug. 2019**
Intern, Product Development *Everett, WA*

- Led a team of six to design, pitch, and file a patent for an integrated stowage structure/cabin floor concept
- Designed flight-test electronics components and housings for the 2019 ecoDemonstrator program

RESEARCH EXPERIENCE

Stanford AI Lab - IPRL **Sep. 2022 – Present**
Research Assistant *Stanford, CA*

- Simulation and control of the Astrobee robot for manipulation of deformable objects in the ISS. Collaboration with NASA Ames

Organic Robotics Laboratory **Aug. 2018 – Sep. 2021**
Research Assistant *Ithaca, NY*

- Autonomous Material Composite Morphing Wing (***Morton*** *et. al., JCM/AFOSR, 2023*)
  - Soft-robotic 3D-printed lattice with embedded optical sensing for an avian-scale wing capable of 3-DOF morphing control (camber, twist, and extension)
  - Led a team of four graduate students over the 2.5-year engineering and research process
- Elastomeric Matrix for Haptics-Aware Foot and Flesh for Legged Robot (*Pending*)
  - Robotic foot design for force sensing via compliance. Collaboration with ETH Zurich
- Optical Lace for Synthetic Afferent Neural Networks (*Xu et. al., Science Robotics, 2019*)
  - Optical/structure integration for deformation sensing

AWARDS / FELLOWSHIPS

- NSF Graduate Research Fellowship 2022
- Stanford: (Finalist) Knight-Hennessy 2021
- Cornell: McManus Design Award 2019
- Cornell: Goethe Prize 2019

SKILLS

Robotics:	Motion control/planning	State estimation/filtering	Optimization
Computer vision	SLAM	Dynamics/Control	Simulation
ML	MDPs/POMDPs	ROS	
Software:	Python	C++	MATLAB
Julia	C	Git	Linux
CAD/CAE:	Inventor	SolidWorks	CATIA
Fusion	AutoCAD	COMSOL	nTopology
Miscellaneous:	3D printing	Mechatronics	Prototyping
Product design	Arduino	Machining	

SELECTED COURSEWORK

Stanford

- CS 237A and CS 237B: Principles of Robot Autonomy I and II
- CS 229: Machine Learning
- CS 221: Artificial Intelligence
- CS 238: Decision Making Under Uncertainty
- CS 361: Engineering Design Optimization
- EE 364A: Convex Optimization
- EE 263: Linear Dynamical Systems
- ENGR 205: Control Design Techniques
- AA 273: State Estimation and Filtering for Robotic Perception
- ME 320: Introduction to Robotics

Cornell

- MAE 4180: Autonomous Mobile Robots
- MAE 4160: Spacecraft Technology and Systems Architecture
- MAE 4060: Spaceflight Mechanics
- MAE 5070: Dynamics of Flight Vehicles
- MAE 3780: Mechatronics

CONFERENCES

- Learning for Dynamics and Control 2022
- Bay Area Robotics Symposium 2021

AFFILIATIONS

- American Society of Mechanical Engineers (ASME)
- Tau Beta Pi Engineering Honor Society (NY Delta)
- National Eagle Scout Association