Trevor L. Craig

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EDUCATION

University of Nebraska-Lincoln **01 2016 – 08 2017**
M.S. Mechanical Engineering & Applied Mechanics *Specialization: Systems, Design and Controls*

University of Nebraska-Lincoln **08 2011 – 12 2015**
B.S. Mechanical Engineering *Minor: Robotics*

Research

Graduate Research **2015 – 2018**
Mechanical Engineer *Lincoln, NE*

- Eye tracking for command based interaction with a computer or robotic system for mobility limited individuals, collaborate with Colorado School of Mines. (2015 – 2018)
  - Created program in MATLAB that processes eye gaze vectors into digital commands.
  - Utilized custom algorithms, Hough Transform, Harris corner, and time optimization.
  - Conducting an IRB Human Subjects Research study into the movement of the eye with participants.
- Modified and expanded the functions of an Episcleral Venomanometer (2016-2018)
  - Designed and iterated new components in SolidWorks to enhance an Episcleral Venomanometer.
  - Added computer vision, modularity, digital readout, and reduction in human reading errors.
  - Created programs for Raspberry Pi and Arduino for real time measurement and viewing of an eye.
  - Monitored applied pressure, lighting, veins, and magnification to the eye.
  - Communicated and collaborated with University of Nebraska Medical Center (UNMC).

EXPERIENCE

Genotypica and SNPSHOT **07 2023 – Present**
Data Analysis, Program Head, and Owner *Lincoln, NE*

- Genotypica(2023 – 2024)
  - Created DNA processing methods to deliver reports similar to 23andMe.
  - Wrote the programming methods to call data from custom databases made in house.
  - Interfaced with the customer to deliver data reports on their samples submitted.
  - Created front end and back end for web delivery of results.
- SNPSHOT (2024 – Present)
  - Created a mobile version of the Genotypica idea for processing existing data. (Dart)
  - Produced an efficient, offline, secure, and lightweight android app.
  - Support the app with a website. (Flask, SQLite, Docker Compose)

MatMaCorp **04 2018 – 10 2025**
Mechanical Engineer and Senior Research Engineer *Lincoln, NE*

- Solas 8 (2018 – 2025)
  - Assisted production and design (SolidWorks).
  - Created calling algorithms for signal analysis and mass testing (Python, C, C++).
  - Coordinated a power solution for a remote and isolated team in Madagascar.
  - Assisted in the EUA for Covid 19.
- MYRTA (2020 – 2025)
  - Responsible for Prototyping, Mechanical design, and Electrical design.
  - Conducted heat simulations (SolidWorks CFD).
  - Point of contact for mass manufacturing and coordinator for purchasing.
  - Created SOP and documentation for future FDA approval through Greenlight Guru.
  - Programmed TI Tiva Chips for processing DNA samples.
  - Manage team $\sim$ 5 engineers and external contractors.
- LABONIT (2019 – 2020)
  - Created Python Flask web front end with JavaScript for graphing.
  - Created a cloud API communicating with PostgreSQL database, complete with OAuth2.
  - Mechanical Design for individual units and electrical design for Embedded Systems.
- NIH RADx (2020 – 2021)
  - Created business plan for purchasing of key infrastructure supporting appliances.
  - Coordinated the installation, purchasing, and preparation of a CNC machine.
  - Managed purchasing and maintenance for 10+ different 3D printers (SLA/FDM/PolyJet).

NMC-CAT **2015**
Mechanical Engineering Intern *Omaha, NE*

- Design and modified a diverse array of parts, tools, and products for CAT machinery.
- Created product manuals, CAD files, FEA, and manufacturing specifications for parts.
- Specified manufacturing techniques, such as louvers, sheet metal, and assembly instructions.

University of Nebraska-Lincoln **2011 – 2015**
Various Positions *Lincoln, NE*

- Computer Lab Technician (2015)
  - Repairing, upgrading, problem solving, and troubleshooting computer hardware and software.
- Abel Engineering Mentor (2013 – 2014)
  - Advised, mentored, tutored, and guided engineering freshmen.
  - Trip chaperone and leader for engineering trip to Kansas City.
- Formula SAE Team (2011 – 2013)
  - Designed and made exhaust header in SolidWorks for the formula car.
  - Calculated and budgeted the cost, length, size, and noise of all elements involved.
  - Assembled and fabricated nose piece and radiator.
- Phi Sigma Pi Honor Fraternity (2012 – 2015)
  - President: Lead, managed, and organized the fraternity.
  - National Delegate- Philadelphia and Atlanta: Represented and voted for the chapter at National events.
  - Big Brother: Mentored and guided new members.
  - Historian: Documented the fraternity history past and present.
  - Service Chair: Organized the cleaning and maintenance of Trago Park. Set up groups for the Big Event, and Dance Marathon.

Publications and Presentations

- Thesis: Interacting with the Human Eye: Gaze Vector Shape Based Recognition and the Design of an Improved Episcleral Venomanometer.
- T. L. Craig, C. A. Nelson, S. Li and X. Zhang, "Human gaze commands classification: A shape based approach to interfacing with robots," 2016 12th IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications (MESA), Auckland, 2016, pp. 1-6. doi: 10.1109/MESA.2016.7587154.
- Human gaze commands classification: A shape based approach to interfacing with robots at the, 2016 12th IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications (MESA 2016).
- T. L. Craig, C. A. Nelson, S. Fan, V. Gulati, S. Kedar, and D.Ghate, "Design of an Automated Measurement System for Episcleral Venous Pressure", 2018 Design of Medical Devices Conference (DMD),Minneapolis, MN. Paper Number DMD2018-6819.

Patents Pending and Filing

- Wireless Sensing of Vehicle Parameters. Collaborators: T. L. Craig, N. A. Wulf, M. B. Newman, J. C. Palmowski, S. Farritor.
  - Designed, tested, iterated, and produced a product for measuring vehicle parameters.
    - Created android app that communicated with m-bed programmed Bluetooth LE chips.
  - Wrote patent documents and worked directly with Speedway Motors.
    - Presented, discussed ideas and prototypes, and determined direction with Speedway Motors.
- Gaze based command procedures. Collaborators: T. L. Craig, C. A. Nelson, S. Li and X. Zhang.
- Near Field Communication Protocol for Biomedical Kits: T. L. Craig, MatMaCorp.

Involvement and Community Service

- Indoor/Outdoor Soccer (2011-2017)
- Racquetball (2011-present)
- Mountain Biking (2023-present)
- Rock Climbing (2012-present)
- Broomball (2011-2017)
- Big Red Event (2012-2015)
- Facilitate Trago Park (2011-2017)

TECHNICAL SKILLS

Languages: Python, C, C++, Dart, JavaScript, PostgreSQL, SQLite
Developer Tools: VS Code, Android Studio, SolidWorks, Eclipse, DB Browser, PyQt5
Technologies/Frameworks: Linux, GitHub, GitLab, Flask, Docker