

# Dale E. Provencher

deprovencher@crimson.ua.edu 704-724-8771

www.linkedin.com/in/dale-provencher/

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## EDUCATION

**Bachelor of Science in Aerospace Engineering**, The University of Alabama, Tuscaloosa, AL, May 2027

GPA: 4.00/4.00

**Relevant Coursework:** Compressible Flow, Flight Mechanics, Thermodynamics, Aerospace Structures, Linear Differential Equations, Algorithm Development and Implementation, Engineering Graphics

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## TECHNICAL SKILLS

*Programming Languages:* Python, C#, Lua, MATLAB

*Software:* Microsoft Office Suite (Word, PowerPoint, Excel), Google Suite (Documents, Spreadsheets, Drive, Slides)

*Engineering Software:* Computer Aided Design (SolidWorks, Onshape), Ansys Suite (Fluent)

*Hardware:* Milling Machines, Band Saws, Manual Lathes, Angle Grinders, Flat Sanders

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## RELEVANT EXPERIENCE

**Process Engineer Intern**, M&H Valve Company, Anniston, AL, Jun 2026 – Aug 2026

- Performed time studies, developing a simplified language system to time and describe individual steps in a fast-moving process and document for continued usage after internship
- Developed an impact wrench bit rated to 120 lb.-ft torques to simplify valve-rod tightening during full hydrant assembly and an automated device design resistant to 250-500 psi loads, minimizing back injury risk and employee turnover
- Coordinated with assembly line staff to experiment with several assembly techniques, reducing loading operations count from 4 to 3 for 12 hydrants

**Liquids Propulsion Sub-Team Member**, Alabama Rocketry Association, Tuscaloosa, AL, Sep 2024 – Present

- Lathed, drilled, and bored features into 3 cylindrical elements to an accuracy of ten thousandths of an inch, producing 3 components of a pintle fuel injector assembly, achieving the desired 7:1 fuel ratio during hot fire
- Designed palm-sized valve stand for nitrogen tube affixed to test stand using SolidWorks to minimize clutter around avionics storage
- Manufactured nitrogen distribution device meant to eliminate ullage collapse while withstanding steady 400 psi loads, drilling precision flow holes, verified with cold-flow-test in Fall 2024
- Assembled and prepared fluid system components including NPT and Swagelok fittings, t-intersections, and pressure-rated piping for vertical launch configuration
- Upheld proper safety procedures, utilizing respirators to fabricate fiberglass composite ablative while collaborating with peers to comply with sizing and precision constraints

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## PROJECTS

**Clidynamics**, Personal Project, 2021 – Present

- Created a two-dimensional, step-based, dynamic simulation program intending to replicate Peter Turchin's Clidynamics model of human civilizations in Lua, modeling inter-polity diplomacy, conflict, and collapse over multi-millennia time periods
- Implemented Dijkstra's path-finding algorithm to calculate distances from tribal borders and polity capitals, increasing accuracy over previous nearest-neighbor-based algorithm
- Experimented with forward Euler approximation of homogenous differential equations to model age demographics

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## HONORS

*Scholarships:* "The University of Alabama Scholar" Scholarship Recipient, Engineering Leadership Scholarship

*Awards:* President's List Fall 2023, Spring 2024, Fall 2024, Spring 2025, Fall 2025, and Spring 2026