Charlie Nitschelm

30 Coe Drive, Durham NH 03824 • (603) 923-9079 • cjn1012@wildcats.unh.edu

**Objective:** To assist in research at the MDRS facility for the 2019-2020 season

**Education****: University of New** **Hampshire** – *College of Engineering and Physical Sciences* **Aug. 2016 – May 2020, anticipated**

GPA: **3.79/4.0** | Honors Program | B.S, Mechanical Engineering | Minor in Physics

**Tech Skills:** Solidworks| MATLAB | VSM | GD&T | DMLS Printing | 5 Axis Machining | Tig and Laser Welding | Water Jet

**Experience****: Rocket Lab USA May 2019 – August 2019**

*Propulsion Manufacturing Engineering Intern*

* Created the factory's first in-depth value stream map to identify process bottlenecks
* Designed and created a company-wide production tracking worksheet to plot production line rates and predict the corresponding effect that engineering projects would deliver, thus highlighting the biggest impactors
* Designed, drafted, and manufactured 9 different tools and fixtures that to reduce set-up and 5-axis CNC machining time by a total of 30 machining hours and 34 set-up hours per engine flight set
* Operated the DMLS 3D printers with setting-up, print up-keeping and taking down during surge times in production
* Designed, cut, and welded the frame for a turbo-pump flow test rig

**TURBOCAM International September 2018 – May 2019**

*Manufacturing Engineering Intern*

* Created and optimized 5-axis mill tool paths using batch with feeds, speeds, approaches and retracts
* Used a Zoller Smile to precisely obtain tool measurement readings after an operation
* Conducted an analysis on tool degradation with different tool coatings for Inconel 718 to determine if the extended tool life would outweigh the costs of tool coating implementation to the factory floor

**National Institute of Standards and Technology (NIST) May 2018 – August 2018**

*Researcher: Mechanical Performance*

* Conducted a study on Inconel 625 in both tension and compression and stress triaxiality on axisymmetric 1018 steel
* Performed low strain rate tests on an MTS and compiled all the data using Python to output useful information
* Designed and performed all experiments on a pulse-heated Split Hopkinson (Kolsky) Bar for high strain rates

**UNH Mechanical Engineering January 2018 – May 2018**

*Undergraduate Researcher*

* Designed and modeled axisymmetric 1018 steel specimens using Solidworks and Abaqus to study stress triaxiality
* Manufactured 30 Inconel 625 specimens in various rolling directions to study the effects of heating rates

**UNH Institute for the Study of Earth, Oceans, and Space May 2017 – August 2017**

*Researcher: Data Analysis*

* Used Python to conduct a systematic search of the COMPTEL satellite data for evidence of polarization
* Performed simulations to estimate the polarization sensitivity for that event

**Relevant Orgs: UNH Students for the Exploration and Development of Space Mar. 2017 – present**

*President, Lead Engineer*

* Managing the Hybrid Rocket program to design, manufacture and build a gimbal-controlled hybrid engine using HTPB and Nitrous Oxide and integrate it into a 7” single stage rocket
* Attended SpaceVision 2018 with 16 team members in San Diego, California to network with other SEDS members
* Lead overall managerial duties including running all meetings and overseeing the goals of the organization
* Created an in-depth flight simulation using MATLAB to optimize our rocket’s design to achieve maximum height

**Other Skills:** Project Management | Organizational Leadership | Creativity and Problem-Solving | Process Improvement

**References: Todd Gross**

*Professor of Mechanical Engineering, University of New Hampshire*

*todd.gross@unh.edu*

**Nicholas Nadaeu**

*Additive Manufacturing Engineer, Rocket Lab*

*n.nadeau@rocketlabusa.com*

**Dan Hirst**

*Board of Directors Chair, SEDS USA*

*dan.hirst@seds.org*