Nathan Okey

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Education

University of Minnesota *Sept. 2022 – Expected*
BS in Mechanical Engineering, Mathematics Minor *May 2026*

- GPA: 3.4/4.0
- **Coursework:** Heat Transfer, Analog Electronics, Quality and Reliability, Systems and Controls

Experience

Research Assistant *Minneapolis, MN*
Thomas E. Murphy Engine Research Laboratory *May 2024 – Present*

- Conversion of a Kubota D1105D IDI diesel engine for 100% ammonia fueling using active pre-chamber spark ignition.
- Quantitatively analyzed datasets in MATLAB collected from experimental engine operation.
- Spec'd, installed, and troubleshooted thermal and fluid systems.

Shift Manager *Delafield, WI*
Noodles & Company *July 2021 – Aug 2023*

- Managed sales and labor costs to optimize daily production and profits.
- Resolved interpersonal conflict between coworkers and customers.

Projects

Gaseous Ammonia Injector

- Designed, prototyped, and manufactured a gaseous ammonia injector, integrating a Parker high-speed solenoid valve.
- SOLIDWORKS, FDM 3D printing, CNC machining

Parallel Flow Heat Exchanger

- Fabricated a low-cost coaxial tube-in-tube heat exchanger.
- Experimentally evaluated the effectiveness and overall heat transfer coefficient with a custom LabVIEW VI.

Skills

Languages: C++, Python, MATLAB

Software: SOLIDWORKS, Creo, Moldflow, MATLAB

Publications

- A. Voris, S. Kane, **N. Okey**, et al.,"Pre-Chamber Combustion of Pure Ammonia in a Single-Cylinder Medium-Duty Engine." *Proceedings of the ASME 2025 ICE Forward Conference (ICEF2025)*, 19–21 Oct. 2025, Milwaukee, Wisconsin. Paper No. ICEF2025-165471.
- A. Dhotre, A. Voris, **N. Okey**, et al., "Comparison of Spark and Turbulent Jet Ignition In a Fully Ammonia-Fueled Engine," SAE Technical Paper, 2025-01-0201.
- A. Voris, S. Kane, S. Wutrich, S. Reggetti, **N. Okey**, et al., "Full Operational Map of a Spark-Ignited Medium-Duty Single-Cylinder 100% Ammonia-Fueled Engine," *under review*, 2025.

Activities

University of Minnesota Cycling Club *Sept. 2022 – Present*
Multiphase Transport Laboratory Volunteer Research Assistant *Dec. 2023 - May 2024*
Gopher Motorsports *Sept. 2022 - May 2023*