John Matthew Nicklas

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EDUCATION

2016 – present **BROWN UNIVERSITY** Providence, RI
- ScB with Honors – 2020
  - Magna Cum Laude
  - Program in Liberal Medical Education (PLME)
  - Applied Math and Biology Concentration (Genetics / Statistics focus)
  - GPA – 3.97/4.00
- Medical School Preclinical Education – 2020-22 (Warren Alpert Medical School)
- Graduate Education (Department of Earth, Environmental, & Planetary Sciences)
  - Research Fellowship 2022-23
  - Preliminary Qualifying Exam Passed January 2024
  - Anticipated PhD 2025
- Medical School Clinical Education (Warren Alpert Medical School)
  - STEP1 Exam Passed April 2022
  - Anticipated MD 2027

2014 – 2016 **UNIVERSITY OF MICHIGAN** Ann Arbor, MI
- Mathematics courses (3) taken for credit during high school
- GPA - 4.0/4.0

HONORS

2023 Brown Daily Herald Profile: "Graduate, medical student explores self-designed graduate program in planetary health", Brown Univ.
2020 Maria L. Caleel Memorial Award for Academic Excellence in Biology, Brown Univ.
2020 Jerome L. Stein Memorial Award for Undergraduate Excellence in Applied Math, Brown Univ.
2020 PLME Community Service Award, Brown Univ.
2020 Sigma Xi Honor Society
2019 Greenfield Research Award, Univ. of Michigan
2018 Frankel Cardiovascular Summer Fellowship, Univ. of Michigan

LABORATORY EXPERIENCE

2017 – present Brown University Fox-Kemper Research Group, Undergraduate Researcher
- Climate Modeling on Oscar (at Brown) and Derecho (UCAR) Computing Clusters
- Porting, Modifying, and Post-Processing CESM (Community Earth Science Model)
- Funded 2017-22: NSF's EPSCoR and RI C-AIM Research Thrust 2 (OIA #165521) "Predicting Ecosystem Response Through Integration"
- Funded 2022-present: NSF's OIA #2316271: 3CRS "Community Coastal Climate Resilience and Solutions" Research Hub, Resilience Metrics Thread

2018 – 2020 University of Michigan Peter Henke Vascular Research Lab, Lab Assistant
- Empirical and Immunohistochemical Staining, PCR, and Gel Electrophoresis
- Photomicrograph Analysis using Statistics and Convolutional Neural Networks
- Assistance in Rodent Surgery and Care

2016 – 2017 Brown University Phage Hunters Seminar (SEA-PHAGES)
- Cell Culturing, Southern Blotting, DNA Extraction, Genome Annotation

LEADERSHIP POSITIONS

2022 – 2024 Sheridan Center Teaching Center Representative, TA Training, DEEPS, Brown Univ.
2022 – present Electrical Team Leader, Scientists for a Sustainable World, Brown Univ. Club
2018 – present Brown Science Olympiad Invitational (for Middle and High School students)
Event Supervisor, Wind Power 2023-2024 (also RI Regional Competition)
Event Supervisor, Simple and Compound Machines 2019-2021
Event Supervisor, Disease Detectives 2018-2019
2021 – 2022 Treasurer, Vascular Surgery Interest Group, Warren Alpert Med School
2016 – 2020 Web Master, Executive Board Member, Brown University PLME Senate
2019 Youth Leader, Central Congregational Church, Providence, RI
2017 – 2018 Percussion Section Head, Brown University Band

EXTRACURRICULAR ACTIVITIES

2024 – present Percussionist, Providence Medical Orchestra, Providence, RI
2022 – present Volunteer Clinical Scribe, Clinica Esperanza, Providence, RI
2021 – 2022 Volunteer Food Pantry Delivery, Be Kind RI, Providence, RI
2021 – present Food Gleaning, Hope Harvest, Providence, RI
2018 – 2021 Community Liaison, Community Health Action Program (CHAP), Providence, RI
2017 – 2020 Brown University Wind Ensemble, Percussion Section
2016 – 2020 Brown University Band, Percussion Section

COMPUTER AND LANGUAGE SKILLS

- Programming Languages: Python, Java, Objective C, Fortran, Matlab, SAS, R, Excel
- Computer Fabrication: OpenSCAD, Solidworks, 3d Printer Operation
- Digital Artwork: Vector Graphics, 3D Renderings, Animations, YouTube-style Educational Videos
- Languages: Native in English, Professional Working Proficiency in French

GRANTS AND SCHOLARSHIPS

Office of Vice President in Research (OVPR) at Brown Funding for "Bayesian Modeling of Climate-Dependent Mortality Risk among US Residents from 1989 to 2020" 2023 ($34,571)
Hazeltine Grant in Engineering – Nelson Center for Entrepreneurship, 2020 ($1000), Sailboost startup.
Esperance Foundation and American Heart Association, Frankel Cardiovascular Summer Fellowship Program 2018, University of Michigan, Undergraduate Summer Researcher

PATENTS

U.S. Non-provisional #10,800,099: Build Plate System For A Heated Deposition Three-Dimensional Printer And Method For Operating The Same, Application No. 15/668,811, filed August 4, 2017, accepted October 13, 2020, authors: **John Matthew Nicklas** and Anna Michelle Nicklas
U.S. Non-provisional #10,008,978: Solar Radiation Redirection Device, Application No. 15/259,637, filed September 8, 2016, accepted June 26, 2018, author: **John Matthew Nicklas**
U.S. Non-provisional #9,752,557: Vertical Axis Turbine, Application No. 14/610,997, filed January 30, 2015, accepted September 5, 2017, author: **John Matthew Nicklas**
U.S. Provisional, Application No. 62/448,283: Genetically Modified Algae That Produce A Reflective Pigment And Use Thereof, filed January 17, 2017, author: **John Matthew Nicklas**
U.S. Provisional, Application No. 63/252,789: Propulsion System for Seagoing Vessel, filed October 6, 2021, author: **John Matthew Nicklas**

TEACHING EXPERIENCE

Teaching Assistant for "Tackling Climate Change with Machine Learning". EEPS-DATA 1720 (Brown)
Spring 2024 (taught by Karianne Bergen, PhD)
Key responsibilities: guest lecturing (3), grading assistance, class discussion
Guest Lecturer on April 16, 2024 for "Earth Science Behind Protest Movements". EEPS 0160W (Brown)
Spring 2024 (taught by Hannah Krueger, PhD)

PUBLICATIONS

PUBLISHED MANUSCRIPTS

1. **Nicklas J Matthew**, Fox-Kemper B. , & Lawrence C. Efficient estimation of climate state and its uncertainty using Kalman filtering with application to policy thresholds and volcanism. *Journal of Climate*, August 2023. Accepted for publication. doi: 10.31223/X5FH2C
2. **Nicklas J Matthew**, Gordon A. E., & Henke P. K. Resolution of deep venous thrombosis: Proposed immune paradigms. *Int J Mol Sci*.;**21**(6):2080 (2020). doi: 10.3390/ijms21062080. PMID: 32197363; PMCID: PMC7139924.
3. Henke PK, **Nicklas J Matthew**, Obi, A. Immune cell–mediated venous thrombus resolution. *Research and Practice in Thrombosis and Haemostasis* **7**, 102268 (2023). doi: 10.1016/j.rpth.2023.102268
4. Williams, D. M., **Nicklas, J Matthew**, Obi, A. & Gordon, D. Pathologic characteristics of human venous in-stent stenosis and stent occlusion. *Journal of Vascular Surgery: Venous and Lymphatic Disorders* **11**, 109-118.e102 (2023). doi: 10.1016/j.jvsv.2022.07.002 (abstract 2021;9(2):547-8.)
5. **Nicklas J Matthew**. Map coloring: A student's perspective. *Mathematics Teaching in the Middle School* **17**(8):502-4 (2012). doi: 10.5951/mathteacmiddscho.17.8.0502

ACCEPTED ABSTRACTS AND POSTERS

1. **Nicklas J Matthew**, Fox-Kemper B. , & Lawrence C. Is the climate now at +1.5°C?
   Poster Presentation, Ocean Sciences Meeting: Feb. 22, 2024 (New Orleans)
2. **Nicklas J Matthew**, Lawrence C., Fox-Kemper B. CESM1 Simulations Show Reflective Particles Can Cool Earth, *Climate Informatics* May 12, 2022 (virtual)
3. **Nicklas J Matthew**, Albright J, Jerzual E, Obi A, Henke PK. Transfemoral carotid artery stenting is inferior to carotid endarterectomy in the community. *Academic Surgical Congress*. 2019;14: 20191174,
   Oral presentation. Academic Surgical Congress. Feb. 7, 2019 (Houston)
4. Gordon AE, **Nicklas J Matthew**, Luke CE, Gordon D, Obi AT, Williams D, Henke PK. Natural history of stasis-induced deep vein thrombosis in a murine model and application in the clinical setting: A histochemical approach. *J Vasc Surg Venous Lymphat Disord*. 2020;8(2):309.
5. Sunkara B, Dorsch MP, Perlman RL, **Nicklas J Matthew**, Nicklas JM. Predictors of acute kidney injury in patients receiving ultra-high dose infusions of loop diuretics for acute decompensated heart failure with chronic kidney disease. *J Am Coll Cardiol*. 2020;75(11 Supp.1):959.
   Virtual poster presentation. American College of Cardiology. March 29, 2020 (Chicago)
6. Sunkara B, Dorsch MP, **Nicklas J Matthew**, Nicklas JM. Voluminous responses to loop diuretics are safe in patients with acute decompensated heart failure and chronic kidney disease. *Circulation*. 2018;138:A16500.
   Poster presentation. American Heart Association Scientific Sessions. Nov. 11, 2018 (Chicago)