

# Dominick M. Scialabba

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## Education:

- Duke University: Pratt School of Engineering – Durham, NC (August 2016 – May 2021)
- Master of Engineering in **Mechanical Engineering**, Graduate Certificate in **Aerospace Engineering** (May 2021)
  - Bachelor of Science of **Mechanical Engineering and Material Science**, Certificate in **Aerospace Engineering**, Minor in **Physics** (May 2020)
  - **Relevant Coursework**: Acoustics, Aerodynamics, Advanced Robotic Design, Aerospace Structures, Aircraft Performance, Astrophysics, Electronics, Fluid Mechanics, Heat-Mass Transfer, Mathematical Modelling, Modern Physics and Optics, Nonlinear Vibrations
  - **Undergraduate GPA: 3.40/4.0, Graduate GPA: 3.80/4.0, GRE: 165/170 Verbal, 168/170 Quantitative, 4/6 Writing**
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## Industry Experience:

- DesignHub and Bluesmith** – **Design and Manufacturing Engineer** – Durham, NC (December 2018 – May 2021)
- Used FEA/CFD, CAM, and 3D-scanning to design and manufacture devices and inventions for organizations around Duke and beyond
  - Provided clients with functioning devices for VOC reduction with capillary bioreactors, dynamic gas microscopy holders for fly larvae, low-profile laptop stands for pediatric cardiology, innovative cannular padding designs, PCB milling and development, and much more
- Apellix** – **Aerial Robotics Engineering Intern** – Jacksonville, FL (May 2020 – August 2020)
- Went from complex idea, to design, to flying and working product in less than 4 months for the largest and most advanced system at Apellix
  - Performed 3D-modeling, simulation, CAM, additive and subtractive manufacturing, electronics integration, and testing for tethered and untethered UASs that take the place of humans in hazardous or highly repetitive work scenarios
  - Developed autonomous and semi-autonomous wind turbine de-icing and ultrasonic wall/coating-thickness testing aircraft
- The Full Belly Project (FBP)** – **Project Manager, Volunteer** – Wilmington, NC (August 2012 – January 2019)
- Directed and taught volunteers for >500hrs in safety, machining, electronics, welding, and design to manufacture solutions to problems in agriculture, energy, transportation, and quality of life in rural NC, the greater USA, and 63 other countries
  - Constructed, tested, and distributed a corona ozone generator for food sterilization, laminated waste-plastic desk-beds for schoolhouses in cooperation with SealedAir, and transportable solar pumps to provide sustainable irrigation for US farmers
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## Academic Experience:

- ME321/421/424 – Mechanical Design** – **Teaching Assistant** – Durham, NC (January 2019 – May 2021)
- Taught students basic machine elements and the physics governing their motions, interactions, wear, and failure, as well as, how to use the associated computational tools of FEA/CFD and motion simulations
  - Conducted labs focused on pump and motor selection, shaft design and machining, practical electronics, computational fluid dynamics of automobile rear-wings, and structural finite element analyses of simple frames
- Duke Chapter of Academy of Model Aeronautics (AMA)** – **President, Treasurer** – Durham, NC (December 2017 – May 2020)
- Designed and built over 20 unmanned aircraft including a 350lb payload capacity, hybrid-electric, dodeca-hexacopter and a 13ft-wingspan, self-sustaining, solar plane with a 1lb sensor payload capacity
  - Competed in UAS competitions such as AUVSI SUAS and Shell XPRIZE involving sensing, sampling, and objective-oriented missions
  - Led FEA/CFD analyses to optimize structure and aerodynamics for performance and manufacturability for the team's largest crafts
  - Drew up a UAS/UAV safety code with Duke Drone Committee to provide certification and allow competent students to fly on Duke campus, in compliance with FAA, FCC, AMA, and Duke standards
- Shockwave and Laser Lithotripsy Research (SWL/LL)** – **Researcher** – Durham, NC (May 2019 – May 2020)
- Studied kidney-stone ablation and comminution by focused extracorporeal shockwaves and endoscopically inserted lasers
  - Used high-speed imagery, photonic measurement systems, OCT, and SEM to examine the influence of cavitation on stone damage
  - Designed, manufactured, and tested novel methods for patient-lithotripter coupling, increasing transmission efficiency by reducing acoustic attenuation from cavitation bubbles in the shockwave path
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## Publications:

- Ho, Scialabba, et al., *The Effects of Laser Pulse Duration on Energy Delivery and Stone Damage During Laser Lithotripsy*, The Journal of Urology, April 2020. DOI: 10.1097/JU.0000000000000949.03 (Best Poster Award, 2020 AUA)
  - Ho, Scialabba, et al., *The Role of Cavitation in Energy Delivery and Stone Damage During Laser Lithotripsy*, The Journal of Endourology (pending)
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## Skills and Interests:

- Proficient in SolidWorks, Fusion360, MATLAB, Maple, Python, MissionPlanner/QGroundControl, EAGEL, and Office and Adobe Suites
- Skilled in tooling, electronic fabrication, additive manufacturing, engine repair, RC, and 3D-scanning
- Limited proficiency in Spanish
- **Extracurriculars**: Astrophotography, Duke Academy of Model Aeronautics, Club Frisbee, and Club Archery