Shounak Das

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Education

- **West Virginia University** — Morgantown, WV, US
  PhD Aerospace Engineering — *Jan. 2019 – Present*
- **Indian Institute of Technology** — Kharagpur, WB, India
  Master of Technology in Aerospace Engineering — *Aug. 2015 – July. 2017*
- **Indian Institute of Engineering Science and Technology** — Shibpur, WB, India
  Bachelor of Engineering in Aerospace Engineering — *Aug. 2011 – July. 2015*

Research Interests

- Robust Sensor Fusion, SLAM, GNSS, Machine Learning

Experience

- **Qualcomm** — Santa Clara, CA, US
  Interim Engineering Intern — *May 2022 - August 2022*
  - **State Estimation**: Implemented and tested visual-inertial odometry systems.
- **West Virginia University** — Morgantown, WV, US
  Graduate Research Assistant — *Jan 2019 - Present*
  - **Robust State Estimation**: Worked with robust estimation techniques for improving point cloud registration with data association errors, wheel-inertial odometry in high slip terrain, and GPS localization using degraded measurements.
  - **NASA Space Robotics Challenge 2**: Tested localization algorithms as a member of the West Virginia University team.
- **Indian Institute of Technology** — Kharagpur, WB, India
  Graduate student — *May 2016 - May 2017*
  - **Magneto-coulombic attitude control of spacecraft**: Simulated satellite attitude control with Lorentz forces by applying the Proportional-Differential (PD) control and sliding mode control.

Publications

- *Cooperative Localization for GNSS-Denied Subterranean Navigation: A UAV-UGV Team Approach*, David Akhihiero, Uthman Olawoye, **Shounak Das**, and Jason Gross (*under review*)
- *Analysis of Scale-Variant Robust Kernel Optimization for Non-linear Least Squares Problems*, **Shounak Das** and Jason Gross, 2023, IEEE Transactions on Aerospace and Electronic Systems
- *A Comparison of Robust Kalman Filters for Improving Wheel-Inertial Odometry in Planetary Rovers*, **Shounak Das**, Cagri Kilic, Ryan Watson, and Jason Gross, 2021, ION GNSS+
- *ZUPT aided GNSS Factor Graph with Inertial Navigation Integration for Wheeled Robots*, **Shounak Das**, Cagri Kilic, Eduardo Gutierrez, Ryan Watson, and Jason Gross, 2021, ION GNSS+
- *NASA Space Robotics Challenge 2 Qualification Round: An Approach to Autonomous Lunar Rover Operations*, Cagri Kilic, Bernardo Martinez R. Jr., Christopher A. Tatsch, Jared Beard, Jared Strader, **Shounak Das**, Derek Ross, Yu Gu, Guilherme A. S. Pereira, and Jason N. Gross, 2021, IEEE Magazine
- *Review of Factor Graphs for Robust GNSS Applications*, **Shounak Das**, Ryan Watson, Jason Gross, 2021

GitHub Projects

- Terrain traversability prediction with graphical models
- Exploration adaptive RRT*
- ZUPT-aided GNSS factor graph
- Robust methods in wheel-inertial odometry

Programming Skills

- Matlab, C++, ROS, Python