

EDUCATION

- **The University of Texas at Dallas** Richardson, TX
PhD in Mechanical Engineering; GPA: 3.86/4.0 Aug. 2017 – Sep. 2021
 - **Dissertation Title:** Design of Large Wind Turbine Rotors Through Passive & Active Load Mitigation Strategies
 - **Research Adviser:** Dr. D Todd Griffith
 - **Honors Society:** Phi Kappa Phi.
- **RV College of Engineering** Bangalore, India
Bachelor of Engineering in Mechanical Engineering; GPA: 8.64/10.0 Sep. 2010 – May. 2014

TECHNICAL SKILLS

- **Wind Turbine Design Tools:** NuMAD, OpenFAST, BECAS, Simulink, WISDEM, ROSCO, MLife.
- **Software Tools:** ANSYS, Solidworks, Eagle CAD, UniGraphics NX.
- **Languages:** MATLAB, Python, LaTeX, Fortran.
- **Others:** Linux, GIT, Continuous Integration (CI), Server deployment, Raspberry Pi, Slurm.

RESEARCH EXPERIENCE

- **The University of Texas at Dallas** Richardson, TX
Research Assistant Aug 2017 - Present
 - **Blade Structure Design (13.2-50 MW):** Designed large wind turbine blades for the SUMR (Segmented Ultralight Morphing Rotor) project funded by ARPA-e.
 - **Active Aerodynamic Control:** Designed and optimized a series of 3.4MW, 10MW, and 15MW turbine models including baseline controllers and detailed blade structures using active aerodynamic controls (funded by ARPA-e under the OPEN 2018 program).
 - **Aero-elastic Instability:** Demonstrated feasibility of reducing blade mass for large wind turbines while mitigating flutter.
 - **Tool Development:** Developed a design tool for large wind turbine blade structure research using MATLAB and a custom MATLAB-Simulink based environment to parallelize OpenFAST loads analysis.
 - **Digital Twin of a wind turbine blade:** Developed a novel multi-fidelity digital twin model to enable a better field-testing campaign. This method was successfully implemented on a 21-meter 1/5th scale wind turbine blade.
 - **Publications:** 8 journal publications, 7 conference papers & 7 articles in preparation.
- **RV College of Engineering** Bangalore, India
Undergraduate Researcher Jan 2013 - Dec 2013
 - **Capacitive Micro-machined Ultrasonic Transducer:** Designed and simulated of a CMUT device with a Polyvinylidene fluoride member using COMSOL Multiphysics.
 - **Laser Drilling:** Simulated the heat effected zone caused by laser drilling of reinforced carbon fiber composite with Nd-YAG laser using COMSOL Multiphysics.

WORK EXPERIENCE

- **Sahyadri Edu Dreamers R&D Pvt Ltd** Mangalore, India
Design Engineer Jul 2016 - Jul 2017
 - **Dream Kit:** Designed an electronic prototyping platform aimed at elementary school children. Also collaborated with Industrial design partners for a manufacturability study on mass production.
 - **Administration:** Assisted in developing the company policies to conform to Government of India regulations on startups.
- **Honda Motorcycle and Scooter India Pvt Ltd** Bangalore, India
Engineer E2 Jul 2014 - Jul 2016
 - **Warranty Analysis:** Streamlined analysis and countermeasure implementation procedures to minimize warranty claims leading to a 33% reduction in engine-related warranty claims.
 - **Continuous Variable Transmission:** Spearheaded a cross-functional team to enhance Continuous Variable Transmission for 'Honda Activa'. India's largest selling two-wheeler vehicle, that led to a 60% reduction in pre-delivery warranty claims.
 - **Global Honda Quality Standards(GHQS):** Defined and authored the Standard Operating Procedures for the newly established department of Market Quality and Engineering based on GHQS, a derivative of ISO 9001:2008.

AWARDS, HONORS, AND GRANTS

- Jonsson School Graduate Study Scholarship, The University Of Texas at Dallas, Mechanical Engineering Department (Fall 2017 - Summer 2018).

JOURNAL PUBLICATIONS

1. Abhineet Gupta, Mario A Rotea, **Mayank Chetan**, Mohammad S. Sakib, D. Todd Griffith. "A Methodology for Robust Load Reduction in Wind Turbine Blades Using Flow Control Devices," *Energies*, 2021.
2. **Mayank Chetan**, Shulong Yao, D. Todd Griffith. "Multi-fidelity Digital Twin Model for a Sub-scale Downwind Wind Turbine Rotor," *Wind Energy*, 2021. DOI: 10.1002/we.2636
3. Shulong Yao, **Mayank Chetan**, D. Todd Griffith, Alejandra S.Escalera Mendoza, Michael S. Selig, Dana Martin, Sepideh Kianbakht, Kathryn Johnson, Eric Loth. "Aero-Structural Design and Optimization of 50 MW Wind Turbine with over 250-meter Blades," *Wind Engineering - Accepted*, 2021.
4. Lucy Y. Pao, Daniel S. Zalkind, D. Todd Griffith, **Mayank Chetan**, Michael S. Selig, Gavin K. Ananda, Christopher J. Bay, Tyler Stehly, Eric Loth, . "Control Co-Design of 13 MW Downwind Two-Bladed Rotors to Achieve 25% Reduction in Levelized Cost of Wind Energy," *Annual Reviews in Control*, 2021. DOI: 10.1016/j.arcontrol.2021.02.001
5. Shulong Yao, **Mayank Chetan**, D. Todd Griffith. "Structural Design and Optimization of a Series of 13.2 MW Downwind Rotors," *Wind Engineering*, 2021. DOI: 10.1177/0309524X20984164
6. Meghan Kaminski, Carlos Noyes, Eric Loth, D. Rick Damiani, Scott Hughes, Christopher Bay, **Mayank Chetan**, D. Todd Griffith, Kathryn Johnson, Dana Martin, . "Gravo-Aeroelastic Scaling of a 13-MW Downwind Rotor for 20% Scale Blades," *Wind Energy*, 2020. DOI: 10.1002/we.2569
7. Shulong Yao, D. Todd Griffith, **Mayank Chetan**., Christopher J. Bay, Rick Damiani, Meghan Kaminski, and Eric Loth. "A gravo-aeroelastically scaled wind turbine rotor at field-prototype scale with strict structural requirements," *Renewable Energy*, Vol. 156, 2020, pp.535-547. DOI: 10.1016/j.renene.2020.03.157
8. Daniel Zalkind, Gavin K. Ananda, **Mayank Chetan**, Dana Martin, Christopher J. Bay, Kathryn Johnson, Eric Loth, D. Todd Griffith, Michael S. Selig, and Lucy Pao. "System-level design studies for large rotors," *Wind Energy Science*, Vol. 4, 2019, pp.595-618. DOI: 10.5194/wes-4-595-2019
9. D. Todd Griffith and **Mayank Chetan**, "Assessment of flutter prediction and trends in the design of large-scale wind turbine rotor blades," *Journal of Physics: Conference Series*, Vol. 1037, No. 4, 2018, pp. 042008.

CONFERENCE PAPERS

1. Alejandra S. Escalera Mendoza, **Mayank Chetan** and D. Todd Griffith, "Quantification of Extreme-Scale Wind Turbine Performance Parameters due to Variations in Beam Properties," *AIAA Scitech 2021 Forum*, 2021, Virtual Event. DOI:10.2514/6.2021-1603
2. Mohammad S. Sakib, **Mayank Chetan** and D. Todd Griffith, "Aero-Structural Design Optimization of a 3.4 MW Wind Turbine Using Plasma Actuator Based Load Control," *AIAA Aviation 2020 Forum*, 2020, Virtual Event.
3. **Mayank Chetan**, Mohammad S. Sakib and D. Todd Griffith, "Aero-Structural Design Study of Extreme-Scale Segmented Ultralight Morphing Rotor Blades," *AIAA Aviation 2019 Forum*, 2019, Dallas, Texas. DOI: 10.2514/6.2019-3347
4. D. Todd Griffith, **Mayank Chetan** and Shulong Yao, "Dynamics of Extreme-scale Wind Turbines," *Proceedings of the International Modal Analysis Conference*, 2019, Orlando, FL, US, Paper No:5703.
5. **Mayank Chetan**, D. Todd Griffith, and Shulong Yao, "Flutter Predictions in the Design of Extreme-Scale Segmented Ultralight Morphing Rotor Blades," *AIAA Scitech 2019 Forum*, 2019, San Diego, California. DOI: 10.2514/6.2019-1298
6. Shulong Yao, D. Todd Griffith, **Mayank Chetan**, Christopher J. Bay, Rick Damiani, Meghan Kaminski, and Eric Loth, "Structural Design of a 1/5th Scale Gravo-Aeroelastically Scaled Wind Turbine Demonstrator Blade for Field Testing," *AIAA Scitech 2019 Forum*, 2019, San Diego, California. DOI: 10.2514/6.2019-1067
7. Christopher J. Bay, Rick Damiani, Lee Jay Fingersh, Scott Hughes, **Mayank Chetan**, Shulong Yao, D. Todd Griffith, Gavin K. Ananda, Michael S. Selig, Daniel Zalkind, Lucy Pao, Dana Martin, Kathryn Johnson, Meghan Kaminski, and Eric Loth, "Design and Testing of a Scaled Demonstrator Turbine at the National Wind Technology Center," *AIAA Scitech 2019 Forum*, 2019, San Diego, California. DOI: 10.2514/6.2019-1068

ACTIVITIES AND INTERESTS

- **AIAA Design Build Fly 2019, 2020**: Graduate student adviser to the AIAA DBF 2019, 2020 team at UT Dallas.
- **21st World Scout Jamboree 2007 (Essex, UK)**: Represented Bharath Scouts and Guides.