

# Namita Anil Kumar

3123 TAMU, College Station, TX - 77840, USA  
namita.anilkumar@tamu.edu • <http://namitaanilkumar.wixsite.com/profile>

<b>OBJECTIVE</b>	To work in a creative and conducive environment towards the betterment of society using innovative and human-centric solutions. Research areas: Product design, user-centric design, human rehabilitation robotics, mechatronics
<b>EDUCATION</b>	<b>Texas A&amp;M University</b> , College Station, Texas, USA Ph.D. in Mechanical Engineering Aug 2017 – present <ul style="list-style-type: none"><li>• Thesis: Development of a Mobilized Exoskeleton for Paraplegics</li><li>• Adviser: Pilwon Hur, Ph.D.</li></ul> Master of Science in Mechanical Engineering Aug 2015 – Aug 2017 <ul style="list-style-type: none"><li>• Thesis: Development of a Compact Gyroscopic Device for Hand Rehabilitation</li><li>• Adviser: Pilwon Hur, Ph.D.</li><li>• Cumulative GPA: 4.0 / 4.0</li></ul> <b>B.M.S. College of Engineering</b> , Bangalore, Karnataka, India Bachelor of Engineering in Mechanical Engineering Aug 2011 – May 2015 <ul style="list-style-type: none"><li>• Academic standing: 2<sup>nd</sup> in a batch of 161 students</li><li>• Cumulative GPA: 9.38/10.0</li></ul>
<b>ACADEMIC PROJECTS</b>	<b>Master's Thesis</b> Aug 2015 – Aug 2017 <i>Development of a Compact Gyroscopic Device for Hand Rehabilitation</i> A hand-held, portable device that imposes a controlled gyroscopic torque on the user's hand; aiding in the relaxation & strengthening of muscles, and increase in neuro-muscular coordination. Key member in concept generation/design, detailed design of both mechanical & electrical systems. Designed and developed Proof of Concept models that successfully proved the working principle for the device. <b>(US patent pending, Application: 62/413,130,)</b> filed on Oct. 26 <sup>th</sup> 2016 <b>Master's Project</b> Feb 2016 – Jul 2016 <i>Development of a Compact Skin-stretch Device for Sensory Feedback</i> Designed and fabricated a skin-stretch device to function as one of the feedback signals in a multi-modal feedback system for powered wheelchair users. The results of the conducted studies showed significant improvement in motor task performance when the multi-modal feedback system was used. <b>B. Engg. Senior year project with Mercedes Benz R&amp;D, India</b> Sep 2014 – May 2015 <i>Mathematical Modeling of Crank-train Dynamics of a 4 Cylinder Inline Diesel Engine</i> A 4 cylinder inline diesel engine was mathematically modeled to aid designers at the conceptual phase of the design process at Daimler trucks power-trains department, Mercedes Benz Research & Development, India. The developed model was further used by the team at Mercedes for designing components. <b>B. Engg. Junior year project</b> Sep 2014 – May 2015 <i>Gyroscopic Stabilization of an Electrically Propelled Bicycle</i> Studied the dynamics of an electrically propelled bicycle, developed the kinematic diagram and calculated the key parametric values to arrive at the specifications/attributes for a gyroscopic stabilizer. Designed the said gyroscopic stabilizer.
<b>PUBLICATIONS</b>	<b>ARTICLES</b> [1] H. U. Yoon, <u>N. Anil Kumar</u> and P. Hur, "Synergistic Effects on the Elderly People's Motor Control by Wearable Skin-Stretch Device Combined with Haptic Joystick", <i>Frontiers in Neurorobotics</i> , Vol 11:31, 2017

## CONFERENCES

- [1] N. Anil Kumar, and P. Hur, “Design of a Compact and Portable Hand Rehabilitation Device for Stroke-Survivors”, in *American Society of Biomechanics 2017*
- [2] N. Anil Kumar, H. U. Yoon, and P. Hur, “A User-Centric Feedback Device for Powered Wheelchairs Comprising a Wearable Skin Stretch Device and a Haptic Joystick”, in *IEEE Advanced Robotics and its Social Impacts 2017*
- [3] H. U. Yoon, L. Lytle, Y. Pan, N. Anil Kumar, W. Hong, D. McGowan, and P. Hur, “Identifying a Perceptual Mapping from Bidirectional Skin Stretch Patterns to Motor Space Perceptions: A Preliminary Study”, in *American Society of Biomechanics 2016*

## ACADEMIC EXPERIENCE

### Research Assistant

- *Human Rehabilitation Lab, Texas A&M* May 2016 – Aug 2016

### Teaching Assistant

- *MEEN 401: Senior Year Design* Aug 2017 – present
- *MEEN 364: Control systems and design* Aug 2016 – Aug 2017
- *MEEN 222: Material science* Aug 2016 – Dec 2016
- *MEEN 360: Selection of Materials and Manufacturing for Design* Jan 2016 – May 2016

## INTERNSHIPS

### **BOSCH Ltd.**, Bangalore, Karnataka, India

Jul 2014 – Jul 2014

*Special Purpose Machine Building*

Studied the various critical components comprising a conveyor system; Basic structural elements; Design analysis of the supporting structure for a press at the department of ATMO6.

### **Honeywell Technology Solutions Lab**, Bangalore, Karnataka, India

Jul 2013 – Sep 2013

*Thermodynamic Investigation of a Lithium Bromide - Water Vapor Absorption Machine for Waste Heat Recovery*

Provided an outline of a Lithium Bromide vapor absorption system and presented a method to evaluate performance characteristics of a small tonnage system at the department of Mechanical Center of Excellence.

### **Trifolium Engineering Pvt. Ltd.**, Bangalore, Karnataka, India

Jul 2012 – Aug 2012

*Mechanical System Design*

Received training in mechanical CAD - CREO parametric, CAD drawings

## TRAININGS

- edX (DDA691x) – *Delft Design Approach* 2015
- Honeywell Technology Solutions Lab – *Aircraft Basic Theory and Aircraft Construction* 2013
- Honeywell Technology Solutions Lab – *Overview of Propulsion Engine Product Line* 2013

## HONORS

- Academic recognition for securing the Second rank in the department of Mechanical Engineering, BMS College of Engineering 2015
- Awarded for serving as Coordinator of Fine Arts Club, BMS College of Engineering 2014
- Merit scholarship by Arvin Meritor 2013

## TECHNICAL SKILLS

- Mechanical CAD: Creo Parametric, Solidworks, Autodesk Inventor
- Electrical CAD: Basics of KiCad
- Analysis: ANSYS, NX Unigraphics, Basics of ABAQUS
- Programming: C++, MATLAB, Mathematica, Labview, Arduino
- Writing:  $\LaTeX$
- Project planning tool: Project Libre

**EXTRA-  
CURRICULAR  
ACTIVITIES**

- Member of the National Service Scheme, India – Student Volunteer Group for social causes
- Member of the Fine Arts Club of BMS College of Engineering
- Led the Fine Arts Club of BMS College of Engineering for the academic year 2013-2014
- Member of the SAE Aerospace Club of BMS College of Engineering
- Trained in Carnatic Classical music (Vocals), Junior level
- Trained in Bharatanatyam Dance, Junior level