Akash Pandey

Curriculum Vitae

PhD Student, Mechanical Engineering
Northwestern University, Illinois 60208
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Linkedin

Education

2021–present **PhD, Mechanical Engineering**, *Northwestern University*, Illinois, USA.
Studying proteins using Machine Learning

Advisor : Dr. Sinan Keten and Dr. Wei Chen

CGPA : 3.97/4

2014–2017 : **Masters (*by research*), Applied Mechanics**, *Indian Institute of Technology Madras*, India.
Study of the fatigue behavior of macro fiber composite (MFC)

CGPA : 9.4/10

2010–2014 : **Bachelor of Engineering, Automobile Engineering**, *Madras Institute of Technology, Anna University*, India.

CGPA : 8.78/10

Publications and Conferences

2022 Payal Mohapatra, Akash Pandey, Bashima Islam, and Qi Zhu. Speech disfluency detection with contextual representation and data distillation. In *Proceedings of the 1st ACM International Workshop on Intelligent Acoustic Systems and Applications*, IASA '22, page 19–24, 2022.

2017 Akash Pandey and A. Arockiarajan. Performance studies on macro fiber composite (mfc) under thermal condition using kirchhoff and mindlin plate theories. *International Journal of Mechanical Sciences*, volume 130, pages 416–425, 2017.

2017 Akash Pandey and A. Arockiarajan. Fatigue study on the sensor performance of macro fiber composite (mfc): Theoretical and experimental approach. *Composite Structures*, volume 174, pages 301–318, 2017.

2017 Akash Pandey and A Arockiarajan. Fatigue study on the actuation performance of macro fiber composite (mfc): theoretical and experimental approach. *Smart Materials and Structures*, volume 26, page 035018. IOP Publishing, feb 2017.

2017 Akash Pandey and A. Arockiarajan. An experimental and theoretical fatigue study on macro fiber composite (mfc) under thermo-mechanical loadings. *European Journal of Mechanics - A/Solids*, volume 66, pages 26–44, 2017.

2016 Akash Pandey and A. Arockiarajan. Experimental studies on fatigue behavior of macro fiber composite (MFC) under mechanical loading. volume 9803, page 98032V. SPIE, 2016.

2016 Akash Pandey and A. Arockiarajan. Actuation performance of macro-fiber composite (mfc): Modeling and experimental studies. *Sensors and Actuators A: Physical*, volume 248, pages 114–129, 2016.

2016 *Methods for Measuring the Life of the MFC as Sensor and Actuator at High Temperature*, Smart Materials, Adaptive Structures and Intelligent Systems, 09 2016.

Research Experience

Northwestern University

April,2022 – present
Sequence-based model to study the dynamic property of proteins.
Developed an LSTM-based deep learning model to predict proteins' B-factor (dynamic property) based on the primary sequence. Using the model, extracted some physically relevant information about the protein's dynamic behavior. Manuscript under preparation.

Collaborators: Dr. Sinan Keten (*Northwestern University*) Dr. Wei Chen (*Northwestern University*)

Jan,2022 – June,2022
Deep learning model to detect Speech Disfluency using wav2vec embeddings.
Developed a deep learning model to detect different types of speech disfluency. Presented this work at the workshop on intelligent acoustics co-located with ACM MobiSys'22 as a second author.

Indian Institute of Technology Madras

July,2014 – April,2017
Study of the fatigue behavior of Macro fiber composite(MFC).
Firstly, I developed experimental setups to study the fatigue behavior of MFC under various loading conditions and then I developed finite element (FEM) models to predict the same behaviors.

Collaborators: Dr. A. Arockiarajan (*Indian Institute of Technology Madras*)

Professional Experience

Infosys Ltd: Engineering Lead

Jan,2021 – Aug, 2021
Stress Analysis and Life Assessment of Rolls-Royce Engine's Disc.
Performed stress analysis, and life assessment of Nickel and Titanium alloy discs in XWB engines. I also developed algorithms to track the fatigue life consumption of the disc continuously

Rolls Royce: Engineering Graduate and later as Advanced Engineer

Jan, 2019 – Dec, 2020
Stress Analysis and Life Assessment of Rolls-Royce Engine's Disc.
Performed stress assessment and life assessment of Nickel and Titanium alloy discs in Trent 1000 and XWB engines. I was also promoted to a position of a reviewer for technical work in our team

July, 2017 – Dec, 2018
Assumed various roles as a part of a rotation program.
As an engineering graduate, I worked in four different teams to get a breadth about the aero-engine design, analysis, manufacturing, and testing.

Teaching Assistantship

Spring, 2022: **Introduction to Aerospace Engineering**, Northwestern University.

Winter, 2016: **Finite Element Analysis**, IIT Madras.

Fellowships & Awards

Feb, 2023 Secured 3^{rd} place in *e-Prevention: Person Identification and Relapse Detection from Continuous Recordings of Biosignals* challenge in ICASSP'23. Invited to present a paper on methodology.

Sept,2021 - June, 2022 Walter P.Murphy Fellowship at Northwestern University

Jan 2019 Recognized as the best outgoing engineering graduate and selected for an accelerated leadership program at Rolls-Royce

July,2014 - April,2017 Awarded Research Fellowship by Govt. of India

Computer skills

Programming Languages: Python, LaTeX

Technologies: Pytorch, Tensorflow, Sklearn, Pandas

Software: ABAQUS, NX, MATLAB