Prashant Kunjam

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EDUCATION	**Indian Institute of Science(IISc)**, Bangalore, Karnataka

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Indian Institute of Science(IISc), Bangalore, Karnataka
Master of Science, Aerospace Engineering, August 2020   GPA: 7.1/10

Dissertation title: *"Optimal Numerical Integration Method for Higher-Order Polygonal Finite Elements and its Application in Microstructure Modeling"*
Advisor: Dr. D. Roy Mahapatra, Associate Professor, IISc

O.P. Jindal University(OPJU), Raigarh, Chhattisgarh
Bachelor of Engineering, Mechanical Engineering, May 2016   GPA: 8.3/10

RESEARCH EXPERIENCE

Project Associate   Department of Mechanical Engineering
November, 2020 - Present   IISc, Bangalore, Karnataka

- Developed MATLAB program for topology optimization of fluids in Stokes flow.
- Developed C program for finite element analyis of fluids using PETSc.

M.S. Research Scholar   Department of Aerospace Engineering
August 2017- August 2020   IISc, Bangalore, Karnataka

- Developed a numerical integration scheme for n-sided polygonal finite elements.
- Developed a novel algorithm to generate statistically equivalent microstructures.
- Finite element analysis of simulated microstructures using polygonal elements.
- Statistical study of stress localization effect due to grain misorientation.
- Quantified the correlation of grain orientations and effective elastic properties.

Research Intern   Impact and Crashworthiness Laboratory
2014   National Aerospace Laboratories(NAL),
                    Bangalore, Karnataka

- Participated and assisted in conducting impact tests(bird strike and drop tower).
- Finite element modeling of structural mechanics problems using Hypermesh and NASTRAN.

CONFERENCE PRESENTATION

International Conference on Advanced Materials and Processes for Defence Applications (ADMAT), 2019

Poster presentation on "Stress Localization in Titanium Alloy Microstructure due to Grain Orientation Anisotropy".

Oral presentation on "Stress Localization in Titanium Alloy Microstructure due to Grain Orientation Anisotropy" in Innovation Pavillion Contest.

SKILLS

Languages: C, FORTRAN.
Applications: MATLAB, COMSOL, PETSc, Visual Studio.
Operating Systems: Linux, Windows

FELLOWSHIPS   Ministry of Education (formerly the Ministry of Human Resource Development) scholarship for qualifying Graduate Aptitude Test in Engineering (GATE), 2017.

RELEVANT COURSEWORKS   Finite element methods, Structural optimization, Linear algebra, Design and analysis of composites, fracture mechanics, Non-destructive evaluation and techniques.

PUBLICATIONS   Prashant Kunjam, K. Shashidhar, S. Rakesh, D. Roy Mahapatra, **"Stochastic modelling of polygonal microstructure of alloy using representative microscopic images"**, *Materials Today Communications*, MTCOMM-D-21-01970.(Under review)

Prashant Kunjam, Satyendra Singh, Sundarajan Natarajan, Stephen P. Bordas, D. Roy Mahapatra, **"Generalization of Optimal Extended Finite Element Computation with Higher Order Polygons"**, *Computer Methods in Applied Mechanics and Engineering.*(In-pipeline)

Prashant Kunjam, K. Shashidhar, Mohammed Javeed Akhter, S. Rakesh, D. Roy Mahapatra, **"Effect of grain orientation statistics on effective properties of titanium alloy microstructure and its correlation"**, *Materials Today Communications.* (In-pipeline)

REFERENCES   **G. K. Ananthasuresh**, Professor
Department of Mechanical Engineering, Indian Institute of Science, Bangalore
Contact: suresh@iisc.ac.in

D. Roy Mahapatra, Associate Professor
Department of Aerospace Engineering, Indian Institute of Science, Bangalore
Contact: roymahapatra@iisc.ac.in

M. Ramchandra Bhat, Chief Research Scientist
Department of Aerospace Engineering, Indian Institute of Science, Bangalore
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Mahesh K Bhiwapurkar, Professor
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