DR. PAWAN GOYAL

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EXPERIENCE

Max Planck Institute
Post-doctoral Researcher
📍 Magdeburg, Germany
📅 Mar '18 – Present

- *BiGmax: Big data-driven for material science project*
  - 3D image reconstruction using SAXS measurements
  - propose new methodologies, leading to very fast 3D reconstruction of material properties from experimental data.
- *Physics-based machine learning*
  - Develop methodologies to construct dynamical systems from data, using some prior knowledge about a process.
- *Reduced-order modeling*
  - Build reduced-order or digital-twin models of large-scale dynamical systems, enabling fast engineering studies, e.g., control, optimizations, uncertainty quantification.

Max Planck Institute
Doctoral Researcher
📍 Magdeburg, Germany
📅 Aug '13 – Feb '18

- Develop novel algorithms to construct reduced models for nonlinear systems.

Airbus Group
Industrial Internship
📍 Bangalore, India
📅 Jan '12 – Jul '12

- Model reduction for incompressible flow via proper orthogonal decomposition

Max Planck Institute
Research Internship
📍 Magdeburg, Germany
📅 May '11 – Jul '11

- Adaptive scheme based on moment matching model reduction for linear timeinvariant systems

Tata Consultancy Service
Industrial Internship
📍 Pune, India
📅 May '10 – Jul '10

- Study of existing issues in locomotive engine controller and feasible solutions systems

FIELD OF EXPERTISES

| Model-order reduction | Compressive sensing |
| Physics-based machine leaninrg |
| Data-driven identification of dynamical systems |
| Image reconstuction and application in material science |

ADDITIONAL TRAINING

| Scientific writing | Professionally presenting |
| Career planning: how to shape your future |

LANGUAGES

English ●●●●○
German ●●●○○
Hindi ●●●●●

EDUCATION

Max Planck Institute
Ph.D. in Applied Mathemtics
📍 Magdeburg, Germany
📅 Aug '13 – Feb '18

- Thesis: System-theoretic model-order reduction for bilinear and quadratic-bilinear systems
- Advisor: Prof. Dr. Peter Benner
- Grade: *summa-cum-laude* (excellent)
- The dissertation was awarded two prestigious awards.

Indian Institute of Technology
M. Tech in Engineering Design
📍 Chennai, India
📅 Jul '12 – May '13

Indian Institute of Technology
B. Tech in Engineering Design
📍 Chennai, India
📅 Jul '08 – May '12

AWARDS

🏆 **Dr. Klaus Körper Award, '19**
For excellent dissertation in the field of applied mathemtics and mechanics by GAMM

🏆 **Best Ph.D. Thesis Award, '18**
Awarded best Ph.D. thesis of the year by the Otto-von-Guericke-Universität, Magdeburg, Germany

HIGHLIGHTS

- Co-authors of more than **15 scientific articles**
- Participated in more than **20 international conferences** and workshops
- Supervised **two masters** students
- **Invited speaker** at the workshop "Mathematics of Reduced Order Models", Providence, USA, Feb '20
- **Research visit** to Prof. K. E. Willcox's group at **MIT, Cambridge, USA**, , Mar '19
- **IPAM travel grant** by the University of California, Los Angeles, USA, for the workshop "HPC and Data Science for Scientific Discovery", Oct '18
- **Travel grant** by the Mathematische Forschungsinstitut Oberwolfach for participation in the Oberwolfach Seminar, Nov '14
- **Visiting research scholarship** by Max Planck Institute, Magdeburg, Germany, May '11

PROGRAMMING SKILLS

MATLAB/Octave ●●●●●
LaTeX ●●●●●
Python ●●●●○
HTML ●●●●○
C++ ●●●○○