CV - Tarun Singh

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Summary

Recent **PhD graduate** in **Aerodynamics** and **Machine Learning**. Proficient in **deep learning, reinforcement learning**, and **optimization techniques**, with expertise in **active flow control** and **computational fluid dynamics** (CFD). Actively seeking challenging **research opportunities** to solve complex engineering challenges through interdisciplinary expertise, collaboration with diverse teams, and continuous learning.

Education

University of Poitiers — Poitiers, France
PhD, Fluid Mechanics — 12/**2020** - 12/**2024**

Cranfield University — Cranfield, England
MSc, Computational Fluid Dynamics — 09/**2018** - 10/**2019**

University of Petroleum & Energy Studies — Dehradun, India
BTech, Aerospace Engineering — 07/**2012** - 05/**2016**

Professional Experience

Institut Pprime, CNRS — Poitiers, France
Doctoral student (aerodynamics and machine learning) — 12/**2020** - 12/**2024**

- **Thesis title:** *Active flow control using neuroevolution guided deep reinforcement learning.*
- PhD advisor: Laurent Cordier, Research Director (CNRS).
- Publication: "Active flow control using neuroevolution guided DRL: towards sample efficient and explorative policy search", Journal of Fluid Mechanics (under review).
- Conference and workshop presentations:
  - ▷ 1^{st} ERCOFTAC workshop on Machine Learning for Fluid Dynamics (ML4Fluids). Sorbonne University, Paris (03/2024).
  - ▷ 3^{rd} international workshop on Artificial Intelligence and Augmented Engineering (AIAE'23). Pascal institute, University of Paris-Saclay (12/2023).
  - ▷ 14^{th} ERCOFTAC symposium on Engineering, Turbulence Modelling and Measurements (ETMM14). Barcelona, Spain (09/2023).

IBM — Bengaluru, India
Systems engineer — 10/**2017** - 08/**2018**

- Optimized and implemented workflows for master data creation, maintenance, and approval for improved efficiency.

Associate systems engineer — 07/**2016** - 09/**2017**

- Functional consultant (SAP) within the master data management team of Arkema chemicals, France.
- Collaborated with cross-functional teams to implement solutions for the client.

Aerial Delivery Research and Development Laboratory, DRDO — Agra, India
Research Intern — 05/**2015** - 08/**2015**

- Study and experiment on the effect of varying fabric porosity on aerodynamic characteristics of a parachute.

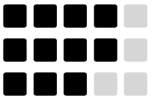
Research projects

MSc thesis: *Multi-objective airfoil shape optimization for high speed flows using deep neural networks*.

BTech project: Computational study of the effect of varying fuel/air mass flow rate on predetonation chamber properties and the delagration - detonation transition in a pulse detonation engine.

Technical Skills

Numerical simulation/analysis, Deep learning, Reinforcement learning
Python, Tecplot, ANSYS-Fluent, Pointwise
OpenFOAM, MATLAB, C++, PyTorch, STAR-CCM+, Tensorflow



Misc.

- **Languages**: Proficient in English (IELTS Academic – CEFR Level: C1) and Hindi. Limited working proficiency in French.