Chih-Kang HUANG

Ph.D. in Applied Mathematics

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Citizenship : French & Taiwanese
Normalien, eligible for Crédit d'Impôt Recherche

🎓 Diploma

Ph.D. in Applied Mathematics
Université de Lyon

2021
Lyon

- » Thesis Title: "Questions of Approximation and Compactness for Geometric Variational Problems"
  Supervised by Olivier Druet (CNRS) and Simon Masnou (University of Lyon)
- › Construction of a *skeleton term* characterizing thin structures of sufaces which allows to numerically approximate solutions to difficult problems such as **Steiner's problem** in 3D and **Plateau's problem**.
- › **Bubbling phenomenon** for small Willmore spheres in Riemannian 3-manifolds
- › **Keywords:** PDE Modeling, Mathematical Optimization, Numerical Simulations, Phase-field Approximation, Willmore energy

Master of Mathematics
Ecole Normale Supérieure de Lyon

2015
Lyon

- » **Normalien Student**
- › Specialized in Advanced Mathematics, PDE Track, **Summa cum Laude**
- › Mathematics **Khôlleur** (viva examiner) at Lycée du Parc

Classes Préparatoires aux Grandes Ecoles (French Elite Education System)
Lycée Janson de Sailly

2012
Paris

- » Dual major in Mathematics and Physics
- » Admission to the entrance exams for the **École Normale Supérieure de Lyon** and **École Polytechnique**

💼 Professional Experiences

Mandatory Military and Civil Service
National Conscription Agency

2021 – 2023
Nantou, Taiwan

- › **Administrative Cadre**, Assignment to the *Research and Evaluation Section*
- › Conducting a study on the General National Service in France

Teaching and Research Associate
Université Claude Bernard Lyon 1, Ecole Normale Supérieure de Lyon

2018 – 2020
Lyon

- › Presentation at **SMAI2021**
- › **3 Invited Scientific talks**
- › **Giving Preparatory courses for l'Agrégation de Mathématiques**

Ph.D. Research Assistant
Institut Camille Jordan

2015 – 2018
Lyon

- › Specific Doctoral Contract for *Normalien*
- › 192 hours of teaching assignments completed (including courses on **Statistics and R**)
- › **Mathematic Popularizations** organized by MathàLyon

⚗ Research and Projects

👤 Data Science and Machine Learning Projects

- » Grouping real estate listings related to the same property using **SentenceTransformers** and **CamemBERT**
- » Solving PDEs such as **Black-Scholes Model** using **PINNs** (Physics-Informed Neural Networks) in Deep Learning
- » Experiences in **Kaggle Competitions** and **ENS Challenge Data**
- » Development of a Python **Chatbot** for automated meal ordering during Civil Service

🎓 Scientific Papers

- » *Mean Curvature Flow of thin structures: A perturbed Allen–Cahn equation with a skeleton penalization*, with E. Bretin and S. Masnou.
- » *Asymptotic analysis for embedded Willmore spheres in 3-Riemannian manifold*, in preparation

💬 Communication

French Bilingual (DALF C1)	**Mandarin** Native	**English** Fluent	**Japanese** Intermediate

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⚙ Hard Skills

Mathematics PDE Mathematical Modeling, Optimization, Numerical Simulations, Calculus of Variations, Geometric analysis
Programming Python (NumPy, pandas, scikit-learn, Pytorch, keras/TensorFlow, …), C++, R, MatLab
Tools LaTeX, Office, Git, vim, VScode, Bash
Cloud Heroku, Fly.io, Google Collab
OS Linux, macOS, Windows
Virtualization docker, podman

🎮 Miscellaneous

Mathematics Olympiads
2007 – 2009

» Participation in APMO (Asian Pacific Mathematics Olympiad), IMO (International Mathematic Olympiad) selection and training camp during high school.

Bridge
2008 –

» Enthusiastic about the intellectual card game Bridge since adolescence. Years of competitive experience in Taiwan and in France.
> Ranking in French Bridge Federation : from 4th Club to 3nd Spade in less than eight months during 2020 – 2021.
> E-trophée Division Honneur 2021 : Ranked 1st at Lyon committee.

Attachment: Cover Letter