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Jianqiang Sky ZHOU

Data & Computer Vision Scientist

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linkedin.com/in/sky-zhou

Physicist with excellent problem-solving, data analysis, communication, and storytelling skills, who takes pride in applying math, statistics, and computer science to solve real-world business problems.

Keywords: Problem-solver, Reliable & Patient, Loyal & Hardworking, Optimistic & Enthusiastic, Fast-learner, Story-teller

Skills

Tools and Languages	Python, Git, LaTeX, Fortran, Linux Bash
Computer Vision	OpenCV, Machine/Deep Learning
Computer Networking	TCP/IP protocols, Rsync, SSH, FTP, Linux Services, Socket Broadcasting
Communication	Chinese, English, French

Technical Experience

Senior Solution Scientist **06/2020 — Present**
Flyinstinct *Paris, France*
A startup that provides solutions based on computer vision technology to industrial products for airport runway FOD (foreign object debris) detection.

- Introduced an instant segmentation model (i.e., Mask-RCNN), which reduces more than 70% system false-positive errors.
- Delivered a 3D-vision based module (i.e., Orthophoto), which yields better detection performance.
- Invented an approach to match images with different luminosity (more efficient than the state-of-the-art, e.g., histogram-matching or Gamma-correction)), which improves 50% of object detection rate.
- Designed a localization algorithm based on perspective transform, leading to an increase of the detection rate from $< 10\%$ to $> 90\%$.

Keywords: Proof of concept, Algorithm design, Computer vision, Objection & segmentation, Machine & deep learning, Data analysis, Computer networking.

Post-doctoral Fellow **02/2018 — 04/2020**
Sorbonne Université, Institut des Nanosciences de Paris *Paris, France*

- Applied a machine-learning type approach (minimize the gradients of the energy using conjugate gradient or steepest descent algorithm) to compute physical concepts.

keywords: Scientific simulation, High-performance computing (HPC), Fortran, Python, MPI/OpenMP, Scientific publications.

Post-doctoral Fellow **07/2016 — 01/2018**
Laboratoire des Solides Irradiés, École Polytechnique. *Palaiseau, France*

- Developed mathematical methods and implemented them in a software (in Python) for bleeding-edge numerical simulations, leading to several top-tier peer-reviewed publications.

keywords: Mathematical derivations, Python, Experimental design, Conference presentation & organization, Scientific publications.

Education

Ph.D. in Theoretical Physics, *École Polytechnique, France* 06/2016

Master of Molecular Nano- and Biophotonics for telecommunications and biotechnologies, *École Normale Supérieure de Cachan, France* 07/2012

B.Sc. in Optoelectronic Engineering, *Harbin institute of technology, China* 07/2019
Erasmus Mundus Scholarship 2010 — 2012

Invited seminars (academic)

Photoemission spectroscopy from first principles invited by the materials and nanosciences research department of the institute of physics,Rrennes-I university. 09/2019

Photoemission spectroscopy from first principles invited by mini-workshop "REST in Paris". 12/2017

Challenges for the cumulant approach in valence photoemission of metals invited by CECAM workshop: Green's function methods: The next generation III. 06/2017