Alberto Di Biase

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Master in Electrical Engineer with an focus in magnetic resonance imaging (MRI) and medical imaging. I have experience working on deep learning research to accelerate and improve MRI. Currently I work as a research assitant at Imperial College London.

Education 🎓

- June 2020 Bs in Biomedical Engineering. Pontificia Universidad Católica de Chile
- November 2022 Electrical Engineering. Pontificia Universidad Católica de Chile
- November 2022 Master in Engineering Science. Pontificia Universidad Católica de Chile. Thesis: Intensity-based Deep Learning for SPION concentration estimation in MR imaging

Skills

- Software ⌨️
  - MatLab
  - Python
  - JavaScript
  - C/C++ (basic)
  - Keras + Tensorflow
  - Pytorch
  - Wolfram Mathematica
  - Office
- Languages 🗣️
  - Spanish (native)
  - English (advance)
  - German (learning)

Links 🔗

- Github https://github.com/tito21
- Blog https://tito21.github.io

Work History

- **Research Experience**
  - 2024 - present 🌐 Research Assistant, Imperial College London. Department of Computing / Visual Information Processing
    - Supervisor: Sonia Nielles-Vallespin Ph. D & Daniel Rueckert Ph. D
    - Diffusion cardiac imaging.
  - 2022 - 2024 🌐 Research Engineer, iHealth Millennium Institute for Intelligent Healthcare Engineer
    - Supervisor: Claudia Prieto Ph. D
    - Reconstruction of parametric maps from undersample MRI using physics informed neural networks.
  - Summer 2020 🌐 Tokio, Japan, Sekino Lab, University of Tokyo
    - Supervisor: Masaki Sekino Ph. D
    - Acquisition and simulation of MR imaging to quantify SPIO concentrations in tissue using deep learning.
  - 2019 🌐 Biomedical Imaging Center PUC
    - Supervisor: Pablo Irrarazaval, Ph. D
    - Application of deep learning to improve undersampled MRI.
    - Participation in the fastMRI challenge https://fastmri.org.
  - Spring 2018 🌐 Biomedical Imaging Center PUC
    - Supervisor: Sergio Uribe, Ph. D
    - Liver segmentation from MRI using deep learning.
- **Internships**
  - Summer 2021 🌐 Santiago, European Southern Observatory (ESO)
    - Supervisor: Fernando Selman Ph. D
    - Develop a deep learning system to identify anomalies in calibration frames.
- **Teacher Assistance** 👨‍🏫
  - Spring 2021, Biomedical imaging
  - Fall 2021, Introduction to Biomedical Engineer, Signal and Systems
  - Fall 2019 and Spring 2020, Image processing fundamentals
  - Fall 2018, Calculus III Lab

Publications and Conference presentations

- **Di Biase A.**, Schneider A., Botnar R. & Pietro C. Model-based Deep Image Prior Reconstruction for iNAV-based 3D whole-heart T2 mapping. *Society for MR Angiography 36th Annual International Meeting*. Santiago Chile, November 2024
- **Di Biase A.**, Schneider A., Botnar R. & Pietro C. Model based rEconstruction by Deep Algorithm unrolLing (MEDAL) for fast 3D whole-heart T2mapping *2024 ISMRM & ISMRT Annual Meeting & Exhibition*. Singapore, May 2024.
- **Di Biase A.**, Liu S., Sekino M., & Irarrázabal P. Intensity-based Deep Learning for SPION concentration estimation in MR imaging, *2023 ISMRM & ISMRT Annual Meeting & Exhibition*. Toronto Canada, June 2023.
- **Di Biase A.**, Botnar R. & Prieto C. Finding Optimal Regularization Parameter for Undersampled Reconstruction using Bayesian Optimization, *2023 ISMRM & ISMRT Annual Meeting & Exhibition*. Toronto Canada, June 2023.
- della Maggiora, G., **Di Biase, A.**, Castillo-Passi, C., & Irarrazaval, P. Attention Based Scale Recurrent Network for Under-Sampled MRI Reconstruction. *2020 ISMRM & ISMRT Annual Meeting & Exhibition*. Virtual, August 2020.

Extracurricular activities

- **Browser Extension UCaccess**, Developer
  - Allows easy and legal access to scientific papers through the university's proxy server.
  - Code and extension: https://github.com/tito21/UCaccess
- **Robotics**, Coach and Tutor 🤖
  - 2016 - 2017 One week workshop for 12-13 year old kids. Each kid could build and program their own mobile robot using the Arduino platform. I have also taught a similar workshop using the LEGO Mindstorm platform.
  - 2015 - 2016 Coach of a FIST LEGO League (FLL) team. The FLL challenge is an international robotics competition where each team has to develop a robot that solves a number of tasks and do a scientific investigation. In 2015 the team won the "Values" national prize.
- **Teleton Foundation**, Voluntary work
  - Summer 2018, Santiago
  - Help on the voluntaries' office.
  - Help organize summer event.