LORENZO ARBOIT

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Nationality : Italian - Date of birth: 09/02/1998

PROFILE

Medical doctor and Ph.D. student in computer science with strong experience in clinical and basic research. Committed to incorporating technology and its capabilities into the clinical setting by exploring innovative procedures (Augmented Reality and Artificial Intelligence) to improve treatment accuracy and reliability.

EDUCATION

University of Strasbourg - ITI HealthTech
Strasbourg, FR

Ph.D. in Medical Computer Science, CAMMA Group — 2024 - Present

- INTERACT: Investigating iNTraoperative Events to Reveal Anastomotic Complications in colorecTal surgery
- OPERATE: Outcome-related Performance Evaluation through Revision and Analysis of inTraoperative Events

Sant'Anna School of Advanced Studies
Pisa, IT

Master in Medical Sciences — 2017 - 2024

- Honors: Honor Student - full government-funded scholarship

University of Pisa
Pisa, IT

Degree in Medicine and Surgery (M.D.) — 2017 - 2023

- Full honors (summa cum laude)

IRCAD France
Strasbourg, FR

- B.E.S.T Summer School — August 2024

  Received the best group project award. Project title: "LapSense"

Institute of Image-Guided Surgery (IHU Strasbourg)
Strasbourg, FR

- Surgical Data Science Summer School — July 2023

  Received the best group project award. Project title: "Advancing Precision: AI-Powered Margin Prediction in Lumpectomy for Breast Cancer"

WORK & RESEARCH EXPERIENCE

University of Strasbourg / Institute of Image-Guided Surgery (IHU Strasbourg)
Strasbourg, FR

- Clinical Research Fellow, CAMMA Group — 2023 - 2024

  Team member of the CompSURG ERC Consolidator project; development and testing of EndoShare, a software solution for the management and sharing of surgical and endoscopic videos

  Project co-coordinator: 'Surgical Annotations and Training Impact on Skill evaluation and Formative Yield (SATISFY)'

  Member of the Generative AI project team, which seeks to create a secure reproduction of laparoscopic images through an innovative AI-generated approach, with a focus on its clinical translatability.

University of Pennsylvania, Perelman School of Medicine
Philadelphia, US

- Research Intern, McKay Orthopedic Department, Schipani Lab — August - December 2022

  The hypoxia pathway and its key action in promoting chondrogenesis and inhibiting hypertrophy in a micromass cell culture model

- Research Intern, McKay Orthopedic Department, Schipani Lab — July - October 2021

Programmed and debugged an R script with the Seurat package for single-cell RNA sequencing analysis on growth plate cells isolated from TFAM-knockout mice.

University of Udine, Department of Maxillofacial Surgery Udine, IT

- Clinical and Research Intern March - July 2021

  Development of an iOS app to visualize soft tissue through a mixed reality approach on a printed patient-specific skull to improve preoperative planning of complex anatomic sites.

- Clinical and Research Intern September - October 2020

  Tested a generative design approach on Fusion 360 to simulate a temporomandibular joint implant

University of Pisa, Department of Orthopedic Surgery Pisa, IT

- Clinical and Research Intern August - October 2019

  Analyzed a large dataset of hip implants to design a new prosthetic concept through finite element analysis of stress loads

University of Paris, Hospital Cochin, Departments of Surgery and Pathology Paris, FR

- Clinical Intern January - June 2022

Collège de France, Centre Interdisciplinaire de Recherche en Biologie Paris, FR

- Research Intern August - September 2018

COURSES

- **Deep Learning Specialization, Professor Andrew Ng** DeepLearning.AI, Coursera

  Neural Networks and Deep Learning - Credential ID VGKMXAPCLVHZ Fall 2022
  Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization - Credential ID LEEDCU3YX7SC
  Structuring Machine Learning Projects - Credential ID MHA53YZ895J2

SKILLS

- Programming Languages: Python, R, C# (within Unity) - Intermediate
- Libraries: Seurat, PyQT, Tkinter - Intermediate

AWARDS

- EAES Research Grant winner - project: 'Surgical Annotations and Training Impact on Skill evaluation and Formative Yield (SATISFY)'

PUBLICATIONS

- Tel, A., Kornfellner, E., Moscato, F., Vinayhalingam S., Xi T., **Arboit L.**, Robiony M. (2023). Optimizing efficiency in the creation of patient-specific plates through field-driven generative design in maxillofacial surgery. *Sci Rep 13*, 12082. https://doi.org/10.1038/s41598-023-39327-8
- Tel, A., **Arboit, L.**, Sembronio, S., Costa, F., Nocini, R., & Robiony, M. (2021). The Transantral Endoscopic Approach: A Portal for Masses of the Inferior Orbit-Improving Surgeons' Experience Through Virtual Endoscopy and Augmented Reality. *Frontiers in surgery*, *8*, 715262. https://doi.org/10.3389/fsurg.2021.715262
- Robiony, M., Bocin, E., Sembronio, S., Costa, F., **Arboit, L.**, & Tel, A. (2021). Working in the era of COVID-19: An organization model for maxillofacial surgery based on telemedicine and video consultation. *Journal of cranio-maxillo-facial surgery: official publication of the European Association for Cranio-Maxillo-Facial Surgery*, *49*(4), 323–328. https://doi.org/10.1016/j.jcms.2021.01.027
- Tel, A., **Arboit, L.**, De Martino, M., Isola, M., Sembronio, S., & Robiony, M. (2022). A systematic review of the software used for virtual surgical planning in craniomaxillofacial surgery over the last decade. *International Journal of Oral & Maxillofacial Surgery*
- Sabini E, **Arboit L**, Khan MP, Lanzolla G, Schipani E. (2023). Oxidative phosphorylation in bone cells. *Bone Reports,* 18,101688. https://doi.org/10.1016/j.bonr.2023.101688

Github repositories: https://github.com/arbua

LEADERSHIP AND INVOLVEMENT

- Student representative of the Medical Sciences department, 'Sant'anna School'
- Student body representative at high school 'Liceo Giorgio Dal Piaz'
- Member of the 'American Academy of Otolaryngology-Head and Neck Surgery'
- Member of the 'Società Italiana Intelligenza Artificiale in Medicina'
- Member of the 'European Association for Endoscopic Surgery'

ADDITIONAL INFORMATION

Languages: Italian (native), English (fluent), French (proficient), German (beginner)
Licenses & certifications: Basic Life Support and Defibrillation, Lifeguard license, C1 Cambridge English Certification, Open Water Scuba Diving license, Piano pre-conservatory qualification
Interests: Piano playing, Aquatic sports, Cooking