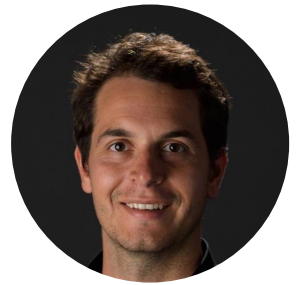


Orestis Vardoulis

MECHANICAL & BIOMEDICAL ENGINEER · MEDICAL TECHNOLOGY INNOVATOR

San Francisco, CA, USA

☎ (+1) 650-460-9624 | ✉ orestis.vardoulis@gmail.com | 🏠 www.ovardoulis.com | 📺 orestisvardoulis | 🐦 @orestisvar



Summary

I am currently the CEO of Zeit Medical, an digital health company that focuses on enabling rapid access to treatment for patients with neurological injury. Previously, I held a variety of research positions at Stanford University (Chemical Engineering, Bioengineering, and School of Medicine). I have a decade of experience in medical technology R&D with a focus on non invasive health monitoring. I have contributed to 20+ original scientific articles and 7 patent disclosures. I am a multifaceted engineer with strong communication skills, the ability to lead, and an expertise in delivering medical technology innovation.

Experience

Zeit Medical

Co-FOUNDER

- Lead the development of a medical device for early identification of cerebral ischemia to improve therapy outcomes

Palo Alto, CA, U.S.A

Apr. 2018 - Present

UCSF-Stanford Pediatric Device Consortium

RESEARCHER AND ENGINEERING LEAD

- Manage engineering consulting support for all incoming project
- Coordinate the feedback and support sessions
- Develop new technologies for central line monitoring

Stanford, CA, U.S.A

Sep. 2018 - Present

FIRE1

INNOVATION CONSULTANT

- Identified a new clinical space where existing, company-owned technology can be applied to address unmet needs
- Conducted competitive landscape and reimbursement pathway analysis

Dublin, Ireland

Apr. 2017 - Jun. 2018

Stanford Chemical Engineering (Bao Research Group)

RESEARCH FELLOW

- Conceptualized and designed a stretchable, self-healing electromechanical interconnect that can support serial bus communication and was developed in collaboration with a team chemists and material scientists
- Wrote firmware to drive modular microcontrollers, sensors, display elements and communications using Arduino IDE for Simblee
- Improved the performance of flexible, capacitive pressure sensors by introducing a new micro pattern of the sensor's dielectric and wrote a MATLAB script to automate the generation of the corresponding silicon wafer masks
- Developed a flexible, wearable, arterial tonometer to assess vascular health and established an in-house process to fabricate low-cost double-sided flexible PCBs

Stanford, CA, U.S.A

Feb. 2016 - Jul. 2017

Advanced Sport Instruments

BIOMEDICAL ENGINEER

- Ported the data analytics back-end (speed, acceleration, position, sprints) from MATLAB into Python
- Developed a tool to export team and player-specific performance reports in a user friendly .xlsx format with Python
- Performed field testing with users and augmented the report according to user needs
- Integrated heart rate and heart rate variability metrics in the performance report

Lausanne, Switzerland

Aug. 2015 - Dec. 2015

Microsoft Research (Medical Devices Group)

RESEARCH CONSULTANT

- Tested a wearable, vascular-health monitoring device
- Identified clinical stakeholders/users and collected feedback on the device design
- Compiled a technical report on usability and performance

Redmond, CA, U.S.A

Mar. 2015 - Jun. 2015

Microsoft Research (Medical Devices Group)

RESEARCH INTERN

- Developed and validated a wearable device for assessing vascular health (Augmentation Index, Pulse Transit Time)
- Sourced and tested critical hardware components
- Designed the pulse-wave signal processing algorithm in MATLAB and ported it to a real time system via C#
- Ran an in vivo sensor validation study against a commercially available vascular tonometer

Redmond, CA, U.S.A

Feb. 2014 - May 2014

Skills

| | |
|------------------------------|---|
| Programming | Matlab, Python, LaTeX, Git, HTML5, Javascript, C/C++ |
| Databases | Mongo, SQLITE |
| CAD & Simulations | Fusion 360, Eagle PCB, Solidworks, Autocad, Rhino, Comsol, ANYS (Fluent, CFX) |
| Prototyping | Wet-lab, Machine-shop, 3D printing, Electronics assembly |
| Languages | Greek, English, German, French |

Education

École polytechnique fédérale de Lausanne

Lausanne, Switzerland

PHD IN BIOTECHNOLOGY AND BIOENGINEERING

Sep. 2010 - Jun. 2015

- Worked at the Laboratory of Hemodynamics and Cardiovascular Technology. Doctoral thesis: "Novel non-invasive techniques for hemodynamic monitoring"

Aristotle University Thessaloniki

Thessaloniki, Greece

DIPLOMA IN MECHANICAL ENGINEERING

Sep. 2004 - Jul. 2010

- Majored in Fluid Mechanics and Turbomachinery. I conducted research in biofluid mechanics. Diploma thesis: "Simulation of the fibrosis effects after a sub-scleral glaucoma drainage device implantation"

Honors & Awards

| | | |
|------|---|--------------------|
| 2018 | Grantee , Biodesign Summer Extension Grant | <i>U.S.A.</i> |
| 2018 | Grantee , Coulter Seed Grant | <i>U.S.A.</i> |
| 2018 | Grantee , Precision Health and Integrated Diagnostics Center Seed Grant | <i>U.S.A.</i> |
| 2018 | Awardee , "Jack Perkins" Award, Institute of Engineering and Physics in Medicine | <i>U.S.A.</i> |
| 2017 | Fellow , Biodesign Innovation Fellowship | <i>U.S.A.</i> |
| 2015 | Fellow , Swiss National Science Foundation Early Mobility Fellowship | <i>Switzerland</i> |
| 2014 | Awardee , EPFL - "Chorafas Foundation" Award | <i>Switzerland</i> |
| 2014 | Awardee , Merit Award "Magna Cum Laude", ISMRM | <i>Italy</i> |
| 2014 | 2nd Place , "Sotiris Papastamatis" Award, Athens Medical Society | <i>Greece</i> |
| 2013 | 1st Place , "Sotiris Papastamatis" Award, Athens Medical Society | <i>Greece</i> |

Additional Contributions

Stanford Wearable Electronics Initiative (eWear PostDoc & Student committee)

Stanford, CA, U.S.A.

LEAD (INDUSTRY OUTREACH)

Jan. 2017 - Jan. 2018

- Founded the PostDoc and Student committee
- Organized a wearable technology mini lecture series with invited speakers from academic and industrial background
- Coordinated student visits to local companies that are actively pursuing wearable technology applications
- Assisted in organizing the annual eWear meeting

Publications

- A hierarchically patterned, bioinspired e-skin able to detect the direction of applied pressure for robotics**
Clementine M Boutry, Marc Negre, Mikael Jorda, Orestis Vardoulis, Alex Chortos, Oussama Khatib, Zhenan Bao
Science Robotics 3.24 (2018) eaau6914. Science Robotics, 2018
- Modular and Reconfigurable Stretchable Electronic Systems**
Jiheong Kang, Donghee Son, Orestis Vardoulis(co-first), Jaewan Mun, Naoji Matsuhisa, Yeongin Kim, Jaemin Kim, Jeffrey B-H Tok, Zhenan Bao
Advanced Materials Technologies (2018) p. 1800417. 2018
- An integrated self-healable electronic skin system fabricated via dynamic reconstruction of a nanostructured conducting network**
Donghee Son, Jiheong Kang, Orestis Vardoulis(co-first), Yeongin Kim, Naoji Matsuhisa, Jin Young Oh, John WF To, Jaewan Mun, Toru Katsumata, Yuxin Liu
Nature nanotechnology 13.11 (2018) p. 1057. Nature Publishing Group, 2018
- Cardiovascular morphometry with high-resolution 3D magnetic resonance: First application to left ventricle diastolic dysfunction**
Diego Gallo, Orestis Vardoulis(co-first), Pierre Monney, Davide Piccini, Panagiotis Antiochos, Juerg Schwitter, Nikolaos Stergiopoulos, Umberto Morbiducci
Medical engineering & physics 47 (2017) pp. 64–71. Elsevier, 2017
- In vivo evaluation of a novel, wrist-mounted arterial pressure sensing device versus the traditional hand-held tonometer**
Orestis Vardoulis, T Scott Saponas, Dan Morris, Nicolas Villar, Greg Smith, Shwetak Patel, Desney Tan
Medical engineering & physics 38.10 (2016) pp. 1063–1069. Elsevier, 2016
- Improved variational denoising of flow fields with application to phase-contrast MRI data**
Emrah Bostan, Stamatios Lefkimiatis, Orestis Vardoulis, Nikolaos Stergiopoulos, Michael Unser
IEEE Signal Processing Letters 22.6 (2015) pp. 762–766. IEEE, 2015
- Single breath-hold 3D measurement of left atrial volume using compressed sensing cardiovascular magnetic resonance and a non-model-based reconstruction approach**
Orestis Vardoulis, Pierre Monney, Amit Bermano, Amir Vaxman, Craig Gotsman, Janine Schwitter, Matthias Stuber, Nikolaos Stergiopoulos, Juerg Schwitter
Journal of Cardiovascular Magnetic Resonance 17.1 (2015) p. 47. BioMed Central, 2015
- Prediction of all-cause mortality in the elderly using a novel method for the estimation of total arterial compliance.**
TG Papaioannou, AD Protogerou, N Stergiopoulos, O Vardoulis, M Safar, J Blacher, C Stefanadis
Archives of Hellenic Medicine/Arheia Ellenikes Iatrikes 31.6 (2014). 2014
- Total arterial compliance estimated by a novel method and all-cause mortality in the elderly: the PROTEGER study**
Theodore G Papaioannou, Athanase D Protogerou, Nikolaos Stergiopoulos, Orestis Vardoulis, Christodoulos Stefanadis, Michel Safar, Jacques Blacher
Age 36.3 (2014) p. 9661. Springer Netherlands, 2014
- First in vivo application and evaluation of a novel method for non-invasive estimation of cardiac output**
Theodore G Papaioannou, Dimitrios Soulis, Orestis Vardoulis, Athanase Protogerou, Petros P Sfikakis, Nikolaos Stergiopoulos, Christodoulos Stefanadis
Medical engineering & physics 36.10 (2014) pp. 1352–1357. Elsevier, 2014
- In vivo evaluation of a novel ‘diastole-patching’ algorithm for the estimation of pulse transit time: advancing the precision in pulse wave velocity measurement**
Theodore G Papaioannou, Orestis Vardoulis(co-first), Athanase Protogerou, George Konstantonis, Petros P Sfikakis, Christodoulos Stefanadis, Nikolaos Stergiopoulos
Physiological measurement 36.1 (2014) p. 149. IOP Publishing, 2014
- Validation of algorithms for the estimation of pulse transit time: where do we stand today?**
Theodoros G Papaioannou, Orestis Vardoulis, Nikolaos Stergiopoulos
Annals of biomedical engineering 42.6 (2014) p. 1143. Springer Science & Business Media, 2014
- Total arterial compliance estimated by a novel method and all-cause mortality in the elderly: The Proteger Study**
TG Papaioannou, AD Protogerou, N Stergiopoulos, O Vardoulis, C Stefanadis, M Safar, J Blacher
Artery Research 3.7 (2013) p. 153. 2013
- Validation of a novel and existing algorithms for the estimation of pulse transit time: advancing the accuracy in pulse wave velocity measurement**
Orestis Vardoulis, Theodore G Papaioannou, Nikolaos Stergiopoulos
American Journal of Physiology-Heart and Circulatory Physiology 304.11 (2013) H1558–H1567. American Physiological Society Bethesda, MD, 2013
- On the estimation of total arterial compliance from aortic pulse wave velocity**
Orestis Vardoulis, Theodore G Papaioannou, Nikolaos Stergiopoulos
Annals of biomedical engineering 40.12 (2012) pp. 2619–2626. Springer US, 2012