

## PERSONAL INFORMATION

### Andrea Adami



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Sex Male | *Nationality* Italian

## WORK EXPERIENCE

From 1/4/2003 to present

### Researcher in the Microsystems Technology Research Unit

Fondazione Bruno Kessler, FBK (Trento, Italia), formerly Istituto Trentino di Cultura, Istituto per la Ricerca Scientifica e Tecnologica, ITC-irst.

- Senior researcher in MEMS development
  - MEMS design
  - MEMS testing
- Project coordination and management

Business or sector Research

## EDUCATION AND TRAINING

From 1/11/2006 to 19/3/2010

### PhD in Information and Communication Technologies

Università degli Studi di Trento: Trento, Trentino-Alto Adige, IT

- PhD thesis on "MEMS piezoresistive micro-cantilever arrays for sensing applications"

From 1/10/1996 to 21/3/2003

### Italian master degree in Materials Engineering

Università degli Studi di Trento: Trento, Trentino-Alto Adige, IT

- Degree thesis on "*Realisation and characterisation of an ISFET-based system with differential configuration for agro-food applications*"

## PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s) English - Level C1. Cambridge CAE degree in 2010

Job-related skills

- Project writing and management for local, Italian and European projects and of R&D project for industry partners.
- 22 years of experience in the development of MEMS sensors and systems. Developed devices include: cantilever-based MEMS structures, tactile sensors, micro-heaters for gas and flow sensors, integrated multiparametric electrochemical sensors, microcolumns for gas-chromatographic applications, microfluidic devices.
- 22 years of experience in modelling and design of MEMS-based sensors. Electro-thermal and mechanical FE simulations and analytical modelling of devices, finalised to the evaluation of the optimal design.
- 22 years of experience in MEMS technologies. Preparation of lithographic masks for the fabrication of MEMS devices, definition of design rules and fabrication processes.

- Simulation of technological steps for the implementation and optimisation of fabrication processes for the realisation of MEMS devices.
- 22 years of experience in sensor testing.

**Digital skills** Good knowledge of common software tools for MEMS design, simulation and testing: e.g. Mentor Graphics L-Edit, mechanical CAD/CAM software (Autodesk Fusion 360), finite elements simulation tools (ANSYS), testing and measurement (LabVIEW, National Instruments).

- Other skills**
- Development of MEMS devices for phase separation and chemical sensing in food and environmental applications (e.g. EU projects ICT-STREP SYMPHONY, MSCA-ITN AQUASENSE)
  - Development of mass flow sensors based on hot wire anemometry for micro-propulsion of spacecraft for scientific space experiments requiring active control of flight stability and attitude in the programs GAIA, Microscope, Euclid, LISA Pathfinder, LISA.
  - Physical sensor for industrial applications: mechanical MEMS force sensors and MEMS for gas properties detection (R&D for industrial partners).
  - Tactile sensors for robotic and prosthetic applications (e.g. Projects “Roboskin”, MSCA-ITN Intuitive)

## ADDITIONAL INFORMATION

- Selected publications**
- Patkar, R.; Vinchurkar, M.; Ashwin, M.; Adami, A.; Giacomozzi, F.; Lorenzelli, L.; Baghini, M. Shojaei; Rao, V. Ramgopal - Microcantilever Based Dual Mode Biosensor For Agricultural Applications – IEEE Sensors Journal, vol. 20, no. 13, pp. 6826-6832, 2020, doi: 10.1109/JSEN.2019.2958947.
  - A. Capuano, V. Mulloni, A. Adami, L. Lorenzelli, Continuous extraction of proteins with a miniaturized electrical split-flow cell equipped with suspended splitters fabricated by dry film lamination, Sensors & Actuators: B. Chemical 273 (2018) 627–634. DOI: 10.1016/j.snb.2018.06.082.
  - A. Mortari, A. Adami, L. Lorenzelli - An unconventional approach to impedance microbiology: detection of culture media conductivity variations due to bacteriophage generated lyses of host bacteria – Biosensors and Bioelectronics, Volume 67, 15 May 2015, Pages 615–620.
  - A. Adami, C. Ressa, C. Collini, S. Pedrotti, L. Lorenzelli - Development of an integrated electrochemical system for in vitro yeast viability testing – Biosensors and Bioelectronics Vol. 40 Issue 1 (2013), 315–322.
  - E. Morganti, C. Collini, R. Cunaccia, A. Gianfelice, L. Odorizzi, A. Adami, L. Lorenzelli, E. Jacchetti, A. Podestà, C. Lenardi, P. Milani - A dielectrophoresis-based microdevice coated with nanostructured TiO<sub>2</sub> for separation of particles and cells – Microfluidics and Nanofluidics 10 (2011), pp. 1211–1221. DOI: 10.1007/s10404-010-0751-8.
  - R. S. Dahiya, D. Cattin, A. Adami, C. Collini, L. Barboni, M. Valle, L. Lorenzelli, R. Oboe, G. Metta, F. Brunetti - Towards Tactile Sensing System on Chip for Robotic Applications – IEEE Sensors Journal. Vol. 11 Issue 12 (2011), 3216-3226.
  - R. S. Dahiya, G. Metta, M. Valle, A. Adami and Leandro Lorenzelli - Piezoelectric Oxide Semiconductor Field Effect Transistor Touch Sensing Devices – Applied Physics Letters, 95 (2009), 034105. DOI: 10.1063/1.3184579.
  - L. Lorenzelli, A. Benvenuto, A. Adami, V. Guarnieri, B. Margesin, V. Mulloni, D. Vincenzi - Development of a gas chromatography Silicon-based microsystem in clinical diagnostics - Biosensors & Bioelectronics, 20 (2005) 10, pp. 1968-1976. DOI: 10.1016/j.bios.2004.09.008

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