



Narges  
Pourjafarian

## Area of Research

Human Computer  
Interaction (HCI),  
Fabrication,  
Embedded Systems,  
Wearable Computing,  
IoT, and Optimization

## Contact

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## Education

- 08.2018 – present **Saarland University, Germany, PhD**  
Human Computer Interaction  
*Thesis: computational design and fabrication of customised sensors*  
Advisor: Prof. Dr. Jürgen Steimle
- 04.2015 – 09.2017 **Saarland University, Germany, M.Sc.**  
Computer Science, final grade: 1.4 (very good, equivalent to GPA A)  
*Thesis: skinPad: design and fabrication of multi-touch sensor for on-skin interaction*
- 09.2008 – 03.2011 **Shiraz University, Iran, M.Sc.**  
Electrical Engineering – Control, GPA: 17.55 out of 20.0  
*Thesis: evaluation and unification of a class of optimization algorithms*
- 09.2001 – 06.2006 **Shiraz University of Technology, Iran, B.Sc.**  
Electrical Engineering – Electronics  
*Thesis: vehicles speed control with image processing*

## Experience

- 08.2018 – present **Saarland University, Germany**  
Research Associate and Doctoral Candidate  
*Area of expertise: HCI, embeded systems, fabrication, wearable and on-skin interfaces, hardware prototyping*
- 08.2017 – 07.2018 **Saarland University, Germany**  
Research Assistant at HCI lab Saarland  
*Area of expertise: embedded systems, wearable computing*
- 08.2007 – 09.2015 **Iranian Telecommunication Manufacturing Company (ITMC - formerly SIEMENS partner in Iran), Iran**  
Senior Research and Development Engineer  
*Cooperation in production of first national Base Transceiver Stations (BTS), operation and maintenance of telecommunication switches*
- 2010 – 2015 **University of Applied Science and Technology, Iran**  
Lecturer  
*Courses: Linear control systems, Principles of GSM networks, Microprocessors, Pulse techniques*

## Academic Activities

- 2018 – 2022 **Teaching - course organization and supervision**  
Interactive touch surfaces, 2022  
Physical computing, 2021  
Human computer interaction, 2018/19
- 2019 – 2022 **Mentoring**  
2 master and 1 bachelor theses
- 2020 **Workshop co-organiser**  
Designing digital touch: social and sensory aspects and challenges, *EuroHaptics 2020*
- 2019–22 **ACM CHI, EuroHaptics reviewer**
- 2021 **Student volunteer ACM CHI**
- 2019 – 2022 **Contribution to open source community**  
Projects: Multi-touch Kit, Sketching On-Body, Print-A-Sketch

## Skills

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### Programming languages

Java, C, C++, C#, HTML

### Tools

MATLAB, Processing, Eclipse, NetBeans, MS Visual Studio, IntelliJ, Unity, PSpice

### Hardware

Programming with MicroControllers (Arduino, AVR, ESP, Teensy, RedBear, etc), Raspberry Pi, Programmable logic controller (PLC)

### Fabrication

Laser Cutting, Screen Printing, Conductive ink-jet printing, Vinyl Cutting, 3D printing, Silicone Casting, Soft Electronic Circuits

### Design

2D Content creation (Adobe Illustrator, Photoshop, Powerpoint), 3D modelling (Blender), Video production (Adobe Premiere Pro)

### Materials

Conductors (Metallic and Polymeric), Electroactive polymer (EAP), Stretchable Substrates (PDMS, TPU)

## Selected Press Coverage

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**Arduino**, Rapidly create your own capacitive multi-touch sensors with this kit

**Hackaday**, Arduino does multitouch

**Hackster**, Capacitive multi-touch sensor prototyping techniques

**Engadget**, Multi-Touch 'skin' makes your body the controller

**Phys.org**, Sensor stickers transform the human body into a multi-touch surface

**New Atlas**, Multi-Touch Skin turns peoples' bodies into remote control units

**ACM Tech News**, Sensor stickers transform the human body into a multi-touch surface

**Vodafone**, Multi-Touch Skin: A sensor sticker turns your body into a touch screen

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## Publication

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### Book

- 2014 Ali Akbar Safavi, Narjes Pourjafarian, and Ali Safavi. *Optimization Based on Meta-Heuristic Algorithms*. Pejoheshgaran Nashr Daneshgahi, 2014. In Persian

### Journal Articles

- 2021 Carey Jewitt, Sara Price, Jürgen Steimle, Gijs Huisman, Lili Golmohammadi, Narges Pourjafarian, William Frier, Thomas Howard, Sima Ipakchian Askar, Michela Ornati, Sabrina Panëels, and Judith Weda. Manifesto for digital social touch in crisis. *Frontiers in Computer Science*, 3:97, 2021
- 2015 Mehran Yazdi, Narjes Pourjafarian, Mehrnaz Fani, and Elahe Taherianfard. A new rstb invariant image template matching based on log-spectrum and modified ica. *Journal of Advances in Computer Engineering and Technology*, 1(1):19–28, 2015
- 2011 Taher Niknam, Elahe Taherian Fard, Narges Pourjafarian, and Alireza Roustaa. An efficient hybrid algorithm based on modified imperialist competitive algorithm and K-means for data clustering. *Engineering Applications of Artificial Intelligence*, 24(2):306 – 317, 2011

### Conference Papers

- 2021 Narjes Pourjafarian, Marion Koelle, Bruno Fruchard, Sahar Mavali, Konstantin Klamka, Daniel Groeger, Paul Strohmeier, and Jürgen Steimle. Bodystylus: Freehand on-body design and fabrication of epidermal interfaces. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, CHI '21, pages 1087–1098, New York, NY, USA, 2021. ACM
- 2021 Narjes Pourjafarian and Paul Strohmeier. Polymerized tape. In *Proceedings of the Fifteenth International Conference on Tangible, Embedded, and Embodied Interaction*, TEI '21, New York, NY, USA, 2021. Association for Computing Machinery
- 2020 Paul Strohmeier, Narjes Pourjafarian, Marion Koelle, Cedric Honnet, Bruno Fruchard, and Jürgen Steimle. Sketching on-body interactions using piezo-resistive kinesiology tape. In *Proceedings of Annual ACM Symposium on Augmented Humans conference*, AHs '20, 2020
- 2019 Narjes Pourjafarian, Anusha Withana, Joseph A. Paradiso, and Jürgen Steimle. Multi-touch kit: A do-it-yourself technique for capacitive multi-touch sensing using a commodity microcontroller. In *Proceedings of the 32Nd Annual ACM Symposium on User Interface Software and Technology*, UIST '19, pages 1071–1083, New York, NY, USA, 2019. ACM
- 2018 Aditya Shekhar Nittala, Anusha Withana, Narjes Pourjafarian, and Jürgen Steimle. Multi-touch skin: A thin and flexible multi-touch sensor for on-skin input. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, CHI '18, pages 33:1–33:12, New York, NY, USA, 2018. ACM
- 2014 Reyhane Mokhtarname, Narjes Pourjafarian, Akbar Rahideh, and Ali Akbar Safavi. Application of wave-net based modified imperialist competitive algorithm in trms system modeling. In *The 22nd Iranian Conference on Electrical Engineering (ICEE)*, 2014. In persian

## Publication

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- 2010 Mehrnaz Fani, Narges Pourjafarian, Elahe Taherian Fard, and Mehran Yazdi. Log-spectrum based RSTB invariant template matching with modified ICA. In *5th International Symposium on Telecommunications (IST)*, pages 787–792, Dec 2010
- 2010 Narjes Pourjafarian and Ali Akbar Safavi. Application of imperialist competitive algorithm in e-commerce negotiation. In *5th international conference on e-commerce in developing countries with focus on export (ECDC)*, pages 61–70, 2010