



## Curriculum Vitae

# Petar Jerčić

Place of living : Graz, Austria  
Date of birth : September 11, 1984  
Nationality : Croatian  
Email : petar.jercic@gmail.com  
URL : www.petarjercic.com

## Research scientist and lecturer in Healthcare, Life sciences and Computational social science

As a research scientist and lecturer specializing in healthcare and life sciences, I have gained valuable experience in entrepreneurship, academia, and industry.

My primary focus is on developing innovative healthcare applications that leverage human physiology and emotions, and to achieve this, I use Data Science, Computational Modeling, and System Architecture to support decision-making and regulate emotions in individuals.

My particular interest lies in real-time systems that can make a positive impact on people's lives.

What I am looking for in my work are **Opportunities** to grow, **Flexibility** in work-life balance, and **Collegial teamwork**.

My most significant competencies are highly **Self-motivated**, **Curiosity** about new challenges, and sensitivity/receptiveness in **Social communication**.

My biggest weakness is that I need to be more willing to take risks, a challenge I work on with myself.

My most important values are **Independence**, **Meaningful work**, and time for **Contemplation**.

## Key Skills

- Python (Pandas tooling), Matlab, R, C++/C#
- Data science

## Education

- **Ph.D. in Computer Science**, Blekinge Institute of Technology (Sweden)  
**Research focus:** Game Development and Design  
**Ph.D. thesis:** The Effects of Emotions and Their Regulation on Decision-making Performance in Affective Serious Games
- **M.Sc. in Computer Science**, University of Split (Croatia)  
**MS thesis:** Business layer logic in information system for job applications
- **Mindfulness MBSR teacher**, Mindful Academy (Spain)

## Working experience

- 02/2022 - Present** - **Postdoc at the Institute of Interactive Systems and Data Science (ISDS) Graz University of Technology, TU Graz (Austria)**
  - Research and teaching in the field of Computational social science (CSS)

- 02/2020 - 02/2021**      **Visiting Researcher**  
**University Medical Center Groningen, Groningen (Netherlands)**
- Research on the possibilities of biofeedback applications in VR treatment for psychiatric disorders at the Department of Psychiatry
- 10/2019 - Present**      **Research scientist in healthcare**  
**Kana, Leeuwarden (Netherlands)**
- Research on affective states of stress and relaxation, and how these influence the mental mindset of gamers
  - Data analysis of physiological data relating to the task performance in the Stressjam serious game
  - System architect for the affective artificial intelligence in the Stressjam serious game for the stress-related treatments
  - Protocol design for the clinical RTC user study, together with the ethical approval applications
- 12/2018 - 09/2019**      **Senior Lecturer**  
**Blekinge Institute of Technology, Karlskrona (Sweden)**
- Course responsible for research methodology courses in higher education
  - Course responsible and supervision for bachelor theses in Computer Science
  - Master thesis supervision in computer science
- 10/2016 - 11/2018**      **R&D Software Designer**  
**Philips Healthcare, Best (Netherlands)**
- Development of X-ray systems in the area of cardiac or vascular medical diagnosis and intervention (i.e., a “dotter” treatment)
  - Requirements design, development, testing and integration of software units related to imaging system and user interface
  - Development of the user interface for the low level control for the movement to combine (high speed) motion with safety for the patient and the operator
  - Working in Agile Scrum Team employing Lean Software development practices
  - Following the Software Documentation Process ISO 13485 standard for Software Development for Medical devices - Class III (IEC 60601)
  - Tooling: C++ 11, Qt5, CMake, Google Test
- 01/2015 - 09/2016**      **Researcher and Developer of Physiology sensors for Hearing Aid (*PhD related*)**  
**The School of Medicine, Split (Croatia)**  
*Research Fellowships for professional development of young researchers and postdoctoral researchers in the field of medical neuroelectronics [EU project]*
- Development of physiology sensors and experiments for the use of fundamental investigation of neurobiology in the human hearing
  - Development of the neuroelectronic software interface based on electroencephalograph (EEG) sampled at high frequency (> 20 kHz)
  - Development of the artifact removal algorithm for the cochlear implants on EEG signals using Independent Component Analysis (ICA)
  - Tooling: MATLAB.
- 01/2014 - 05/2014**      **Robotic system developer (*PhD related*)**  
**RIKEN Brain Science Institute (RIKEN BSI), Tokyo (Japan)**

- Development of robotic technologies communicating with physiological sensor technologies (i.e., EEG and Microsoft Kinect)
- Collaborative interaction between human and robot
- System architect and software engineer, knowledge and technology transfer
- Tooling: C/C++, Python, MATLAB.

**04/2013 - 06/2013**     **Brain-Computer Interface (BCI) developer (*PhD related*)**  
**Radboud University, Nijmegen (Netherlands)**

- Development of Brain-Computer Interface (BCI) technologies using Serious Games as training tools, which use EEG medical sensor to extract information on various brain states
- Used wearable EEG device and Serious games allowing convenience and short setup times
- System architect and software engineer, knowledge and technology transfer
- Demonstration at Europeans Researcher Night 2014 for popularization of science
- Tooling: C/C++, C#, MATLAB

**06/2012 - 09/2013**     **Researcher and Developer of Dynamic Robotic Systems (*PhD related*)**  
**Blekinge Institute of Technology, Karlskrona (Sweden)**

*PsyIntEC [EU project]*

- Advances that address safe ergonomic and empathetic adaptation by a robotic system to the needs and characteristics of a human co-worker during collaborative work in a joint human-robot work cell
- Psychophysiological (or biometric) data input (i.e., ECG, EEG and GSR) as the basis for affective and cognitive modelling of the human partner as a basis for behavioral adaptation
- Project proposal, managing publishing and reporting research
- System architect and software engineer
- Tooling: C/C++, C#, Java, MATLAB.

**03/2010 - 09/2012**     **Researcher and Developer of Serious Game Technologies (*PhD related*)**  
**Blekinge Institute of Technology, Karlskrona (Sweden)**

*xDelia [EU project]*

- Improving financial decision making by developing and evaluating the potential of serious games and medical sensors
- Development of tools to conduct experimental and field research, medical instrumentation and serious games
- The importance for competence building of contextual and psychological validity, and of the need for timely and relevant feedback
- Biofeedback using Serious games and medical sensors (i.e., ECG, EEG and GSR)
- Managing publishing and reporting research
- Knowledge transfer
- Tooling: C/C++, Unity 3D, C#, Java, MATLAB, DirectX, OpenGL

**03/2009 - 01/2010**     **Systems architect and developer (*Fulltime job*)**  
**FESB (Lama d.o.o.), Split (Croatia)**

- Development of IPNAS (Intelligent Surveillance System Against Fire) system
- A series of cameras monitoring certain area for potential fire threat
- Framework for communication between cameras and the servers in Unix

- Image processing and analysis using Gauss MM
- Tooling: C/C++, OpenCV, JavaScript, PHP, HTML

**08/2008 - 09/2008**    **C# and SQL developer (*ISE program*)  
Ghent University (UGent), Ghent (Belgium)**

- Development of software solution for simulating flow and behavior of refrigerants in heat exchangers
- Mechanical engineering department
- User interface
- Tooling: C, C#, SQL

**01/2008 - 05/2008**    **Fortran and Matlab Developer (*ISE program*)  
University of Michigan (UMICH), Ann Arbor (United States)**

- Development of Design Optimization software for application in car design
- Mechanical engineering department
- Optimization algorithms framework ,visualization of data
- Tooling: C/C++, FORTRAN, MATLAB.

**09/2007 - 01/2009**    **Web developer (*Parttime job*)  
Internet partner (Booking IT), Split (Croatia)**

- Development of Hotel Booking System and Accommodation Booking portal
- Microsoft .NET technology
- Tooling: VB.NET, SQL, JavaScript, PHP, HTML

## Service

- 
- \* Keynote speaker at the International Week Health & Social Studies 2023 at HAN University of Applied Sciences (Nijmegen, Netherlands)
  - \* Invited speaker at Human Factors NL Congress 2019 (Sosteborg, Netherlands)
  - \* Organizational board member for Games for Health Journal
  - \* Technical Program Committee for IEEE Global Conference on Computing, Power and Communication Technologies (GlobConPT 2023), Joint Conference on Serious Games (JCSG2023)
  - \* Reviewer for IEEE Transactions on Affective Computing, Games for Health Journal, Games for Health Journal, Robotics, New Ideas in Psychology
  - \* Reviewer for International Conference on Entertainment Computing (IFIP), International Conference on Virtual Worlds and Games for Serious Applications (VS-Games), IEEE International Conference on Systems, Man, and Cybernetics (SMC 2019), International Conference on Entertainment Computing (IFIP)
  - \* Reviewer for Springer Workshop on Digital Transformation for an Inclusive Society

## Languages

- 
- English (fluent)
  - German (intermediate)
  - Japanese (basic)
  - Croatian (native)

## Awards and Honors

- 
- The Honorary Mention Best Paper Award, IFIP-ICEC 'Entertainment Computing' 2019 and 2018

## Lecturing experience

---

### Graz University of Technology (Austria)

- Computational Modelling of Social Systems, Institute of Interactive Systems and Data Science, 2022/23
- Foundations of Computational Social Systems, Institute of Interactive Systems and Data Science, 2022/23

### Blekinge Institute of Technology (Sweden)

- Introduction to Programming, School of Computing, 2010-13
- 3D Programming, School of Computing, 2010-14
- Advanced 3D Programming, School of Computing, 2010-14
- Game and Interaction Design, School of Computing, 2013-14
- Student Game Projects, School of Computing, 2013-14
- Research Methodology (Course Responsible), Department of Computer Science, 2018-19
- Data Visualization, Department of Computer Science, 2018-19
- Bachelor Thesis in Computer Science (Course Responsible, Supervision) BTH 2013-19
- Supervision of bachelor and master theses in Computer Science, Game Development and Technical Artist program (BTH) 2013-19
- Master Thesis in Computer Science (Supervision) 2019
- Certified on three Higher Education Pedagogy courses bearing 22.5 ECTS points

### Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Split (Croatia)

- Introduction to Programming, Department of Computing, 2008-09
- Programming for Web, Department of Computing, 2008-09

## Sound media art projects

---

### 06/2017 4. Sound Art Incubator

#### Kontejner (Zagreb, Croatia)

The goal of this project is to use sounds to raise awareness of 'being in the moment'. This is achieved through breaking the repetitive and expected patterns in listening to music, through the introduction of random movement in both harmony and rhythm without repetitions. I am inviting the audience to actively pay attention and listen to (controlled) random/unpredictable sounds and music in each moment of these compositions, which is free of repetitive and expected patterns. Therefore, there is no opportunity to relive already learned musical elements and plan for the future development of the compositions. The audience can only be in the moment with sounds and music as they develop, being aware.

### 09/2016 Barcelona brain, cognition and technology summer school

#### University of Pompeu Fabra (Barcelona, Spain)

Sonification of interactive behavior in robots and intelligent spaces. Nowadays a parametric and deliberately manipulation of sound diffusion in the acoustic space is a well-know possibility to listen to music in a theatre, cinema or living room. It is something similar to widespread technology surround 5.1. Different from this canonical system, our proposal is to setup an eight speakers system (octophonic field) to investigate how the listener's perception behaves when virtual sound sources are presented and manipulated. That is, our goal is to immerse the listener into a sound projection created by audible sound trajectories.

## Other

---

Music (guitar), free climbing

## Publications

---

1. DOCTORAL THESIS - The Effects of Emotions and Their Regulation on Decision-making Performance in Affective Serious Games, *Blekinge Institute of Technology, Karlskrona (Sweden)*, on April 2019., supervisor: Veronica Sundstedt
2. Horvat M., Jerčić, P. (2023) A SURVEY ON USAGE OF MULTIMEDIA DATABASES FOR EMOTION ELICITATION: A QUANTITATIVE REPORT ON HOW CONTENT DIVERSITY CAN IMPROVE PERFORMANCE. In: Proceedings of 46th International Convention on Information and Communication Technology, Electronics and Microelectronics MIPRO 2023 (Opatija, Croatia)
3. Cnossen, AM., Maarsingh, BM., Jerčić, P., Rosier, I. (2022) THE EFFECTS OF STRESS MINDSET, MANIPULATED THROUGH SERIOUS GAME INTERVENTION, ON PERFORMANCE AND SITUATION AWARENESS OF ELITE FEMALE FOOTBALL PLAYERS IN THE CONTEXT OF A MATCH: AN EXPERIMENTAL STUDY, *Games Health J.* 2022 Dec 30.
4. Jerčić, P., Hagelbäck, J., Lindley, C. (2019). AN AFFECTIVE SERIOUS GAME FOR COLLABORATION BETWEEN HUMANS AND ROBOTS, *Entertainment Computing, Elsevier.* vol. 32: In Press
5. Jerčić, P. (2019) AROUSAL MEASUREMENT REFLECTED IN THE PUPIL DIAMETER FOR A DECISION-MAKING PERFORMANCE IN SERIOUS GAMES. In: van der Spek E., Göbel S., Do EL., Clua E., Baalsrud Hauge J. (eds) *Entertainment Computing and Serious Games. ICEC-JCSG 2019. Lecture Notes in Computer Science*, vol 11863. Springer, Cham
6. Jerčić, P. (2019). WHAT CAN THE BASELINE MEASUREMENT PREDICT ABOUT DECISION-MAKING PERFORMANCE IN SERIOUS GAMES In: van der Spek E., Göbel S., Yi-Luen Do E., Clua E., Baalsrud-Hauge J. (eds) *Entertainment Computing and Serious Games - ICEC JCSG 2019. Lecture Notes in Computer Science*, Springer, Cham, In Press
7. Jerčić P., Sundstedt V., (2019). PRACTICING EMOTION-REGULATION THROUGH BIOFEEDBACK ON THE DECISION-MAKING PERFORMANCE IN THE CONTEXT OF SERIOUS GAMES: A SYSTEMATIC REVIEW, *Entertainment Computing, Elsevier*, vol. 29, pp.75-86.
8. Jerčić, P., Sennersten, C., Lindley, C. (2018). MODELING COGNITIVE LOAD AND PHYSIOLOGICAL AROUSAL THROUGH PUPIL DIAMETER AND HEART RATE. *Multimedia Tools and Applications*, pp. 1-15.
9. Jerčić, P., Hagelbäck, J., Lindley, C. (2018). PHYSIOLOGICAL AFFECT AND PERFORMANCE IN A COLLABORATIVE SERIOUS GAME BETWEEN HUMANS AND AN AUTONOMOUS ROBOT. In: Clua E., Roque L., Lugmayr A., Tuomi P. (eds) *Entertainment Computing - ICEC 2018. Lecture Notes in Computer Science*, Springer, Cham, vol 11112, pp. 127-138
10. Jerčić P., Wen W., Hagelbäck J., Sundstedt V., THE EFFECT OF EMOTIONS AND SOCIAL BEHAVIOR ON PERFORMANCE IN A COLLABORATIVE SERIOUS GAME BETWEEN HUMANS AND AUTONOMOUS ROBOTS, *International Journal of Social Robotics*, vol. 10(1), pp. 115-129.
11. Jerčić, P., Astor, P. J., Adam, M., Hilborn, O., Schaff, K., Lindley, C. A., Sennersten, C., et al. (2012). A SERIOUS GAME USING PHYSIOLOGICAL INTERFACES FOR EMOTION REGULATION TRAINING IN THE CONTEXT OF FINANCIAL DECISION MAKING. *Proceedings of the 20th European Conference on Information Systems (ECIS 2012)*. AIS Electronic Library (AISeL).

12. Jerčić P., Sennersten C., Lindley C., THE EFFECT OF COGNITIVE LOAD ON PHYSIOLOGICAL AROUSAL IN A DECISION-MAKING SERIOUS GAME, *In: 9th International Conference on Virtual Worlds and Games for Serious Applications (VS-Games 2017), Athens, 2017, pp. 153-156.*
13. Adam M. T. P., Astor P. J., Jerčić P., Schaaff K. (2013). INTEGRATING BIOSIGNALS INTO INFORMATION SYSTEMS: A NEUROIS TOOL FOR IMPROVING EMOTION REGULATION. *The Journal of Management Information Systems, vol. 30(3), pp. 247-278.*
14. Jerčić, P., Cederholm H. (2010). THE FUTURE OF BRAIN-COMPUTER INTERFACE FOR GAMES AND INTERACTION DESIGN. Biosplay workshop at *Fun and Games Conference 2010.*
15. M. Horvat, M. Dobrinić, M. Novosel and P. Jerčić (2018) ASSESSING EMOTIONAL RESPONSES INDUCED IN VIRTUAL REALITY USING A CONSUMER EEG HEADSET: A PRELIMINARY REPORT, *41st International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO), Opatija, 2018, pp. 1006-1010.*
16. Sohaib A.T., Qureshi S., Hagelbäck J., Hilborn O., Jerčić P. (2013). EVALUATING CLASSIFIERS FOR EMOTION RECOGNITION USING EEG. *In: Schmorow D.D., Fidopiastis C.M. (eds) Foundations of Augmented Cognition. AC 2013. Lecture Notes in Computer Science, Springer, Berlin, Heidelberg, vol 8027, pp. 492-501*
17. Peffer G., Cederholm H., Clough G., Jerčić P. (2010). EVALUATING GAMES DESIGNED TO IMPROVE FINANCIAL CAPABILITY. *ECEL 2010 9th European Conference on e-Learning.*
18. Hagelbäck J., Hilborn O., Jerčić P., Johansson S. J., Lindley C. A., Svensson J, Wen W. (2013). PSYCHOPHYSIOLOGICAL INTERACTION AND EMPATHIC COGNITION FOR HUMAN-ROBOT COOPERATIVE WORK (PSYINTEC). *Gearing Up and Accelerating Cross-Fertilization between Academic and Industrial Robotics Research in Europe, Tracts in Advanced Robotics, Springer, Cham, 2014.p.p. 283-299.*