Monica **Perusquía Hernández**

HUMAN INFORMATICS SCIENTIST

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Education

Apr 2015 - Mar 2018 | **Empowerment Informatics (PhD)**
Tsukuba, Japan | **School of Integrative and Global Majors. University of Tsukuba.**
- Graduated with honors.
- Thesis: "Dynamics of Positive Affective Responses Identified through Behavioral and Electrophysiological Measures"

Sep 2012 - Aug 2014 | **Professional Doctorate in Engineering in User-System Interaction (PDEng)**
Eindhoven, The Netherlands | **Stan Ackermans Institute, Industrial Design. Eindhoven University of Technology.**
- Graduated with honors.
- Graduation project: "Smart-Garment Design for an Ambulatory Pregnancy Monitoring System"

Aug 2010 - Jul 2012 | **Human-Technology Interaction (MSc)**
Eindhoven, The Netherlands | **Faculty of Industrial Engineering and Innovation Sciences. Eindhoven University of Technology.**
- Graduated with great appreciation.
- Thesis: "A Brain-Computer Interface for Walking"

Sep 2011 - Jul 2012 | **Artificial Intelligence (MSc, exchange student)**
Nijmegen, The Netherlands | **Faculty of Social Sciences. Radboud University.**

Aug 2004 - Jul 2009 | **Electronic Systems Engineering (BSc)**
Toluca, Mexico | **School of Engineering and Architecture, Instituto Tecnológico y de Estudios Superiores de Monterrey.**
- Graduated with honors.

Feb 2008 - Feb 2009 | **Computer Engineering (Exchange student)**
Furtwangen, Germany | **Furtwangen University.**

Work Experience

Mar 2022 - Present | **Assistant Professor**
Nara, Japan | **Nara Institute of Science and Technology (NAIST)**

Apr 2021 - Present | **Visiting Researcher**
Atsugi, Japan | **NTT Communication Science Laboratories**
- Conducted independent research on Affective Sciences with multiple sensors and novel experimental tasks. In particular, regarding emotion awareness and facial expression motor control.
- Coordinated team-research.

Feb 2021 - Feb 2022 | **Senior Research Officer**
Colchester, United Kingdom | **University of Essex**
- Conducted research on the facial feedback hypothesis using Neuromuscular Electrical Stimulation (NMES) and facial mimicry paradigms.
- Developed NMES artifact rejection algorithms from other electrophysiological measurements.

Apr 2018 - Mar 2021 | **Research Associate**
Atsugi, Japan | **NTT Communication Science Laboratories**
- Conducted independent research on computational models of empathetic communication among people using Computer Vision, Electrophysiological Measures and Bayesian Cognitive Modelling techniques.
- Organized research exhibitions and demonstrations.
- Coordinated different research projects where two or more research institutions were involved with a budget of approximately 45.000 USD.

Apr 2015 – Oct 2016 | **Freelance Data Scientist**

Hilversum, the Netherlands | **AdviceGames**

- Developed data models to predict consumer financial behavior for mortgage products.
- Wrote scientific reports about the developed models.

Oct 2014 – Mar 2015 | **Data Scientist**

Hilversum, the Netherlands | **AdviceGames**

- Developed data models to predict consumer financial behavior, especially regarding mortgages.
- Designed and created data visualizations to describe financial behavior both at group and individual levels.
- Conducted user research, both quantitative and qualitative, regarding games and gamified applications to change financial behavior.

Jan 2014 – Sep 2014 | **User-centered designer**

Eindhoven, the Netherlands | **Eindhoven University of Technology in the framework of the SEBAN Consortium: Philips, IMEC, TMSi, STW**

- Smart-Energy Body Area Network (SEBAN) is a system for pregnancy monitoring at home, using (fetal) electrocardiography (fECG) and Electrohysterography (EHG).
- Stakeholder's project requirements gathering.
- User research to gather design requirements based on the user's needs (mothers-to-be and caregivers).
- Iterative design of a comfortable and unobtrusive textile garment with integrated flexible electronics.
- User evaluation of the system and improvement according to user's feedback.
- Team and project management with different industrial partners.

Sep 2012 – Sep 2014 | **User-System Interaction consultant**

Eindhoven, the Netherlands | **Stan Ackermans Institute.**

- User research (statistics, behavior modeling, perception, cognition, requirement gathering), Interaction Design (web and novel technologies), User-Centered Design, Rapid Prototyping (paper, wireframes, web, video, tangible and wearable prototypes), in fast-paced projects for different clients.
- Team management in a multicultural, multidisciplinary environment.

Jul 2009 – Jul 2010 | **Systems Analyst**

Toluca, Mexico | **HSBC Banking Corporation, Information Technologies**

- Stakeholder's requirement gathering, database design, installation, development, support and administration of Business Intelligence applications.
- Information retrieval and data analysis of large amounts of data (more than one million entries) using SQL for DB2, Solaris and Web environments.

Educational Related Work Experience

Aug 2016 – Sep 2016 | **Research and Development Trainee in Virtual Reality Application Design**

Tokyo, Japan | **Fujitsu Laboratories**

- Proposed and designed a Virtual Reality Application to support language learning.
- Prototyped the design using Unity, Oculus Rift, and Microsoft Kinect.
- Conducted user evaluations and improved the design iteratively.
- Analyzed the evaluation results and proposed improvements in three iterations.

Sep 2011 – Jul 2012 | **Research Trainee in Brain-Computer Interfaces**

Nijmegen, the Netherlands | **Sint Maartenskliniek**

- Designed and run experiments using EEG, EMG and optical kinematic sensors.
- Analyzed and processed the data in both time and frequency domain using Matlab.
- Used machine learning algorithms to implement a Brain-Computer Interface (BCI) for walking.
- Assessed the usability of the BCI using behavioral measures and analyzed the data using SPSS.

Jan 2011 – Jan 2011 | **Research Trainee in Psychophysics**

Eindhoven, the Netherlands | **Philips Research Visual Experiences**

- Designed and executed experiments on the Psychophysics of Subtle Dynamic Lighting.
- Analyzed the quantitative results using Matlab and the qualitative results using affinity diagrams.
- Reported the results in a corporative presentation.

Dec 2007 – Feb 2008 | **Computer Science Trainee**

Toluca, Mexico | **Consultoría Integral de Sistemas de Información (CISI) and HSBC Banking Corporation**

- Initialization and documentation of variables for cash dispensers using COBOL and an AS400 system.

Teaching and Mentoring Experience

Sep 2019 - Oct 2020 **Internship mentor**

Atsugi, Japan **NTT Communication Science Laboratories**

- **Level:** Master.
- **Topic:** Assessing the influence of emotion in taste perception.
- **Participant:** one student
- **Methodology:** One-on-one mentoring. Affective science experiment design, execution and data analysis. Closed-loop collaboration.
- **Outcome:** An experiment was designed and conducted. The student got experience managing EMG and EDA experiments. The data analysis so far has led to a conference submission.

Feb 2020 - Mar 2020 **Internship mentor**

Atsugi, Japan **NTT Communication Science Laboratories**

- **Level:** Master. Doctorate.
- **Topic:** Understanding top-down and bottom-up mechanisms for human perception and action.
- **Participant:** three students.
- **Methodology:** One-on-one mentoring. Team-work. Affective science experiment design, execution and data analysis. Closed-loop collaboration.
- **Outcome:** Three experiments on affective computing were conducted. The students got hands on experience on how to deal with multimodal recording systems and data analysis. Also to conduct several experiments in parallel.

Sep 2019 - Oct 2019 **Workshop organizer and instructor**

Toluca, Mexico **Tecnológico de Monterrey, Campus Toluca**

- **Level:** Highschool, Bachelor and Master.
- **Topic:** The Science Behind Technological Design: A Human-Centered Approach.
- **Participants:** Workshop with 20 students.
- **Methodology:** One multidisciplinary team was formed by all participants. Scrum was used to keep track of the collaboration. Responsibilities were rotated according to the learning potential and interests displayed by the students. Performance was assessed on self-improvement.
- **Outcome:** Designed and prototyped a biofeedback haptic suit for stress reduction. Students learned how to collaborate to create prototypes in short periods of time.

Aug 2019 - Dec 2019 **Internship mentor**

Atsugi, Japan **NTT Communication Science Laboratories**

- **Level:** Doctorate.
- **Topic:** Understanding top-down and bottom-up mechanisms for human perception and action.
- **Participant:** one student.
- **Methodology:** One-on-one mentoring. Brainstorming for new research project creation. Psychological experiment design. Closed-loop collaboration.
- **Outcome:** Throughout this collaboration, three experiments on navigation were devised and conducted. So far, one journal and one conference paper have been published. Two unpublished poster presentations were also given at a scientific venue.

Aug 2019 - Aug 2019 **Internship mentor**

Atsugi, Japan **NTT Communication Science Laboratories**

- **Level:** Master.
- **Topic:** Modeling affective expression perception using multilevel Bayesian analysis.
- **Participant:** one student.
- **Methodology:** One-on-one mentoring. Scrum development with weekly presentations to obtain expert feedback. Performance was assessed on self-improvement.
- **Outcome:** Taught basic R programming to a Psychology student to the extent that he could develop his own models and apply them not only to the project but also to his own research.

Apr 2016 - Aug 2016 **Teaching Assistant**

Tsukuba, Japan **University of Tsukuba**

- **Level:** Master. Doctorate.
- **Topic:** Computational Neuromotor Control.
- **Participants:** 5 students.
- **Methodology:** Lectures and practical assignments.
- **Outcome:** Supported students with their practical assignments.

Grants

Research Grants

2017	**Challenge grant,** Project: 3D Navigation control. University of Tsukuba. Tsukuba, Japan.	5 000 USD
2016	**Grant for original research project,** Project: 3D Navigation control. University of Tsukuba. Tsukuba, Japan.	1 000 USD

Scholarships

2015 – 2018	**Special Fellows Scholarship,** University of Tsukuba. Tsukuba, Japan.	82 000 USD
2010 – 2012	**Talent Scholarship Program,** Eindhoven University of Technology. Eindhoven, the Netherlands.	41 000 USD
2004 – 2009	**Excellency Scholarship,** Instituto Tecnológico y de Estudios Superiores de Monterrey. Toluca, Mexico.	25 000 USD

Invited talks

2021	**KD2School seminar,** Perusquía-Hernández, M. "The Affect-Embodiment Coherence and its applications to assess design success and improve well-being"	Karlsruhe Institute of Technology
2021	**Cybersecurity, privacy, and human-centred computing seminar,** Perusquía-Hernández, M. "Continuous Experience Sampling and the Affect-Embodiment Coherence"	Cardiff University
2021	**DFG Collaborative Research Center,** Perusquía-Hernández, M. "Continuous Experience Sampling and the Affect-Embodiment Coherence"	Humboldt-Universität zu Berlin
2017	**Nichibokubashi Symposium,** Perusquía-Hernández, M., Suzuki, K., "A wearable device for fast and subtle spontaneous smile recognition."	Mexican Consulate in Japan

Service

Guest-editor

2021 MDPI Applied Sciences Special Issue "Research on Facial Expression Recognition".

Journal reviewer

2022 IEEE Transactions on Affective Computing, MDPI Applied Sciences, Motivation and Emotion (MOEM)

2021 IEEE Transactions on Affective Computing, MDPI Applied Sciences, Motivation and Emotion (MOEM), Brazilian Journal of Computers in Education (RBIE)

2020 Personal and Ubiquitous Computing (PAUC), Journal of the Royal Society Interface, Journal of General and Family Medicine, Cognitive Neurodynamics

Conference reviewer

2022 CHI, TEI, MobileHCI.

2021 ACII, TEI, AH, UIST, CSCW, ICMI, IMWUT, SUI, CHI, SAS.

2020 ICMI, TEI, CHI, UIST, AutomotiveUI, ISWC.

2019 ACII, TEI, ICMI, CHI.

2018 TEI, ICMI, SUI, CSCW, CHI PLAY, AutomotiveUI.

Chair

2021 ACII Virtual organization and social media co-chair

Skills

Technical **Very Experienced:** Matlab, R, C++, Microsoft Office. **Experienced:** Python, C, SQL, HTML, CSS, Arduino, Processing, Unix, Adobe Illustrator, Adobe Photoshop, Adobe Premiere, Axure, Circuit Design, Latex, Git. **Basics:** Java, JavaScript, jQuery, PHP, Unity. **Familiar:** Embedded Linux, Robot Operating System (ROS).

Research Machine learning, experimental design, qualitative research, quantitative research, statistical analysis, user experience research, user-centered design, usability testing, low, mid and hi-fidelity prototyping, multimodal sensing using EEG, EMG, GSR, PPG, motion tracking sensors, heart rate monitors, and IMUs.

Languages **Spanish** (native), **English** (advanced, 660 Institutional TOEFL, 7.0 IELTS), **French** (intermediate, DELF B1), **Dutch** (intermediate, NT2-II ¾ delen), **Japanese** (intermediate, JLPT N2, currently learning), **German** (basic, currently learning).

Publications and presentations list

Journals

2021 **Perusquía-Hernández, M.** "Are people happy when they smile? Affective assessments based on automatic smile genuineness identification". Emotion Studies 6 (1), pp. 57-71. [EmotionStudies2021]

2019 **Perusquía-Hernández, M.**, Ayabe-Kanamura, S., Suzuki, K., "Human perception and biosignal-based identification of posed and spontaneous smiles". PLoS ONE Vol. 14(12): e0226328. [PLOSOne2019]

2019 Dollack, F., **Perusquía-Hernández, M.**, Kadone, H., Suzuki, K. "Gaze and head anticipation during locomotion with auditory instruction in the presence and absence of visual input". Frontiers in Human Neuroscience Vol. 13:293. [FHN2019]

2017 **Perusquía-Hernández, M.**, Hirokawa, M., Suzuki, K., "A wearable device for fast and subtle spontaneous smile recognition". IEEE Transactions on Affective Computing Vol. 8, no. 4, pp. 522-533. [IEEETAC2017]

2014 Severens, M., **Perusquía-Hernández, M.**, Nienhuis, B., Farquhar, J., Duysens, J., "Using Actual and Imagined Walking Related Desynchronisation Features in a BCI". IEEE Transactions on Neural Systems and Rehabilitation Engineering, vol. 23, issue 5, pp.877-886. [IEEETNSRE2014]

Conference proceedings

2021 **Perusquía-Hernández, M.**, Dollack, F., Tan, C. K., Namba, S., Ayabe-Kanamura, S., Suzuki, K. "Smile Action Unit detection from distal wearable Electromyography and Computer Vision". 16th IEEE International Conference on Automatic Face and Gesture Recognition. [FG2021]

2021 Gómez Jáuregui, D.A., Dollack, F., **Perusquía-Hernández, M.** "Robot mirroring: Improving well-being by fostering empathy with an artificial agent representing the self". Functions of emotions for socially interactive agents workshop adjunct to the 9th Affective Computing and Intelligent Interaction Conference. [ACII2021]

2021 Knierim, M. T., Schemmer, M., **Perusquía-Hernández, M.** "Exploring the recognition of facial activities through around-the-ear electrode arrays". NeuroIS, pp. 57-65. [NeuroIS2021]

2020 Zushi, N., **Perusquía-Hernández, M.**, Ayabe-Kanamura, S. "The effect of different affective arousal levels on taste perception". 4th Workshop of Multisensory Approaches to Human-Food Interaction, adjunct to the International Conference on Multimodal Interaction, pp. 328–331. [ICMI2020]

2020 **Perusquía-Hernández, M.**, Gómez Jáuregui, D. A., Cuberos-Balda, M., Paez-Granados, D. F., Dollack, F., Salazar, J. V. "Robot Mirroring: Promoting Empathy with an Artificial Agent by Reflecting the User's Physiological Affective States". International Symposium on Robot and Human Interactive Communication (RO-MAN 2020), pp. 1328-1333. [ROMAN2020]

2019 Dollack, F., **Perusquía-Hernández, M.**, Kadone, H., Suzuki, K. "Auditory Locomotion Guidance System For Spatial Localization". 2019 International Symposium on Micro-NanoMechatronics and Human Science (MHS), pp. 1-5. [MHS2019]

2019 Palumbo, C., Kriening, H., Wajda, B., **Perusquía-Hernández, M.**, "Understanding User Needs: Requirements for an Augmented Reality Lamp Customization Tool". Proceedings of the Design and Semantics of Form and Movement Conference, XI Edition (DeSForM19), pp. 252-255, 4 pages. [DESFORM2019]

2019 **Perusquía-Hernández, M.**, Ayabe-Kanamura, S., Suzuki, K., "Affective Assessments with Skin Conductance Measured from the Neck and Head Movement". Proceedings of the 8th Affective Computing and Intelligent Interaction Conference. [ACII2019a]

2019 Nunez, E., Hirokawa, M., **Perusquía-Hernández, M.**, Suzuki, K., "Effect on Social Connectedness and Stress Levels by Using a Huggable Interface in Remote Communication". Proceedings of the 8th Affective Computing and Intelligent Interaction Conference. [ACII2019b]

2019 **Perusquía-Hernández, M.**, Ayabe-Kanamura, S., Suzuki, K., and Kumano, S. "The Invisible Potential of Facial Electromyography: A Comparison of EMG and Computer Vision when Distinguishing Posed from Spontaneous Smiles". In CHI Conference on Human Factors in Computing Systems Proceedings (CHI 2019), 9 pages. [CHI2019]

2017 **Perusquía-Hernández, M.**, Hirokawa, M., Suzuki, K., "Spontaneous and Posed Smile Recognition Based on Spatial and Temporal Patterns of Facial EMG". Proceedings of the 8th Augmented Human International Conference. Article 4, 8 pages. 2017. [ACII2017]

2017 **Perusquía-Hernández, M.**, Martins, T., Enomoto, T., Otsuki, M., Iwata, H., Suzuki, K., "Embodied Interface for Levitation and Navigation in a 3D Large Space". Proceedings of the 8th Augmented Human International Conference. Article 4, 8 pages. [AH2017]

2016 **Perusquía-Hernández, M.**, Martins, T., Enomoto, T., Otsuki, M., Iwata, H., Suzuki, K., "Multimodal Embodied Interface for Levitation and Navigation in 3D Space". Proceedings of the 2016 Symposium on Spatial User Interaction, pp. 215, 1 page. [SUI2016]

2014 **Perusquía-Hernández, M.**, Chen, W., Feijs, L., "Garment Design for an Ambulatory Pregnancy Monitoring System. Ambient Assisted Living and Daily Activities". Proceedings of the 6th International Work-Conference, IWAAL 2014, pp. 219-227, 8 pages. [IWAAL2014]

2014 **Perusquía-Hernández, M.**, Kriening, H., Palumbo, C., Wajda, B., "User-Centered Design of a Lamp Customization Tool". Proceedings of the 5th Augmented Human International Conference, Article 36, 2 pages. [AH2014]

Book chapter

2016 **Perusquía-Hernández, M.**, Chen, W., Feijs, L., "Textile-Integrated Electronics for Ambulatory Pregnancy Monitoring". Book chapter in Advances in smart medical textiles - Woodhead Publishing. Pages 239–268.

Publications without peer-review

2021 Wong-Villacres, M., Garcia Alvarado, A. and Badillo-Urquiola, K., Machuca Barrera, M.D. and Ciolfi, M.F., Gaytán-Lugo, L.S., Lemus, O.A., Reynolds-Cuéllar, P. and **Perusquía-Hernández, M.**, "Lessons from Latin America: Embracing Horizontality to Reconstruct HCI as a Pluriverse". Interactions. Vol. 28, no. 2, pp. 56-63. [Interactons2021]

2020 **Perusquía-Hernández, M.**, Dollack, F., Tan, C. K., Namba, S., Ayabe-Kanamura, S., Suzuki, K. "Facial movement synergies and Action Unit detection from distal wearable Electromyography and Computer Vision". arXiv:2008.08791. [arXiv2008]

2019 **Perusquía-Hernández, M.**, Gómez Jáuregui, D. A., Cuberos-Balda, M., Paez-Granados, D. F. "Robot mirroring: A Framework for Self-Tracking Feedback through Empathy with an Artificial Agent Representing the Self". arXiv:1903.08524. [arXiv2019]

2018 Watanabe, J., Ooishi, Y., Kumano, S., **Perusquía-Hernández, M.**, Sato, T., Murata, A., Mugitani, R. "Measuring, Understanding, and Cultivating Wellbeing in the Age of Technology". NTT Technical Review, vol.30, no. 9, pp. 29-32. [NTT2018]

Conference presentations without proceedings

2022 **Perusquía-Hernández, M.**, Naoya, Z., Ayabe-Kanamura, S. "Dynamics of voluntary smiles during positive and negative moods". International Society for Research on Emotion Annual Meeting. 2022. Upcoming accepted oral presentation. [ISRE2022]

2022 **Perusquía-Hernández, M.**, Kumano, S., Ayabe-Kanamura, S., Hirokawa, M., and Suzuki, K. "Facial muscle synchrony and smile genuineness perception". 8th CERE conference. 2022. Upcoming accepted oral presentation. [CERE2022]

2022 **Perusquía-Hernández, M.** "The affect-embodiment coherence". Embodied Intelligence International Conference 2022. Upcoming accepted oral presentation. [EI2022]

2021 **Perusquía-Hernández, M.**, Dollack, F., Tan, C.K., Namba, S., Ayabe-Kanamura, S., Suzuki, K. "Facial distal electromyography synergy analysis uncovers the relevance of the Duchenne marker in spontaneous smile production". Society of Affective Science conference. 2021. Oral presentation. [SAS2021a]

2021 **Perusquía-Hernández, M.**, Dollack, F., Ayabe-Kanamura, S., Suzuki, K. "Solitary and social smile production in congenital blindness". Society of Affective Science conference. 2021. Oral presentation. [SAS2021b]

2021 Zushi, N., **Perusquía-Hernández, M.**, Ayabe-Kanamura, S. "The Effect of Valence and Arousal Levels on Taste Perception". Society of Affective Science conference. 2021. Oral presentation. [SAS2021c]

2020 **Perusquía-Hernández, M.**, Yabe, Y. "Time Perception and Emotion Awareness". First Workshop on Momentary Emotion Elicitation and Capture (MEEC), at the CHI Conference on Human Factors in Computing Systems (CHI 2020) Workshops. Oral presentation. [MEEC2020]

2019 Dollack, F., **Perusquía-Hernández, M.**, Kadone, H., Suzuki, K. "Effect of Voluntary Gaze Movement on Gait Steering Control". International Society of Posture and Gait Research (ISPGR) World Congress. Poster. [ISPGR2019a]

2019 Dollack, F., Kadone, H., **Perusquía-Hernández, M.**, Suzuki, K. "Head Anticipation during Auditory Instructed Locomotion". International Society of Posture and Gait Research (ISPGR) World Congress. Poster. [ISPGR2019b]

2012 **Perusquía-Hernández, M.**, Severens, M., Farquhar, J., Cuijpers, R.H., "A Brain-Computer Interface for Walking". BBCI Workshop 2012 on Advances in Neurotechnology. Poster. [BBCI2012]

Conference Workshop organization

2021 El Ali, A., **Perusquía-Hernández, M.**, Hassib, M., Abdelrahman, Y., Newn, J. "MEEC: Second Workshop on Momentary Emotion Elicitation and Capture". In CHI Conference on Human Factors in Computing Systems (CHI 2021) Workshops. [CHI2021]

2020 El Ali, A., **Perusquía-Hernández, M.**, Denman, P., Abdelrahman, Y., Hassib, M., Meschtscherjakov, A., Ferreira, D., Henze, N. "MEEC: First Workshop on Momentary Emotion Elicitation and Capture". In CHI Conference on Human Factors in Computing Systems (CHI 2020) Workshops. [CHI2020a]

2020 Alvarado Garcia, A., Badillo-Urquiola, K., Barrera Machuca, M.D., Cibrian, F., Ciolfi Felice, M., Gaytan-Lugo, L.S., Gomez-Zara, D., Griggio, C., **Perusquía-Hernández, M.**, Silva Prietch, S., Tejada, C., Wong-Villacres, M. Fostering HCI Research in, by, and for Latin America. In CHI Conference on Human Factors in Computing Systems (CHI 2020) Special Interest Groups. [CHI2020b]

2013 Palumbo, C., **Perusquía-Hernández, M.**, Malyk, J., Wajda, B., Brink, E., Khodabakhshi, F. "UX Camp Netherlands". Eindhoven, The Netherlands. [UXCNL2013]