Daniela Caballero

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EDUCATION

PhD Computer Science 2011 – 2015
Computer Science Department, Pontificia Universidad Católica de Chile, Chile
- Dissertation title: Interactive Instruction with Open Collaborative Interaction Mechanisms
- Advisor: Prof. Miguel Nussbaum

Engineer, Information Technologies diploma 2007 – 2013
Computer Science Department, Pontificia Universidad Católica de Chile.

RESEARCH AND LECTURING EXPERIENCE

Impact evaluation of national pilot programs 2019 – Present
Ministry of Education of Chile and Centro de Investigación Avanzada en Educación (CIAE), Universidad de Chile, Chile
- Curriculum and Evaluation Department of Ministry of Education
- Development of IT system for data analysis
- Data analysis of classroom observations and teacher discourse
- Multidisciplinary team that includes teachers, social sciences' researchers and schools' directors

Master thesis co-supervisor 2019 – Present
IT Department and Education Faculty, Jyväskylä University, Finland
- Teacher discourse analysis using Automatic Speech Recognition and machine learning techniques
- Modelling different teaching strategies
- Clustering of concept network measures to find relationship between teacher speech and students learning gains

Postdoc 2016 – Present
Centro de Investigación Avanzada en Educación (CIAE), Universidad de Chile, Chile
- Research title: "Lesson Study en Chile: valoraciones y apreciaciones de observadores de clases públicas STEM". Selected in first place among all educational proposals (Expected completion: July 2020)
- Smartphone app development to record class audio and classroom observation
- Automatic Speech Recognition (ASR) to create automatic concept network
- Collaboration with Finnish researchers from University of Jyväskylä and Tampere University of Technology

Part-time lecturer 2015 – 2017
Computer Science Department, Pontificia Universidad Católica de Chile
- Introduction to programming
- Programming as an engineering tool
- Hypermedia and knowledge transmission

Part-time lecturer 2016
Computer Science Department, Universidad de los Andes, Chile.
- Introduction to programming

Doctoral Internship 2013-2014
Computer-Human Interaction for Learning and Instruction (CHILI-Lab), École Polytechnique Fédérale de Lausanne (EPFL), Switzeland
- Advisor: Prof. Pierre Dillenbourg
- Research support on what Massive Open Online Courses effect on collaborative activities using Eye Tracking techniques
- Education software development of fraction learning in primary school
- Promote classroom orchestration and evaluation of user interfaces of paper computing

Teacher Assistant 2009 - 2015
Pontificia Universidad Católica de Chile
- Computer Human Interfaces
- Information Technologies Adoption
- Introduction to programming
- Software engineering
- Introduction to public policies
- Elemental Math
- Calculus I
- Calculus II

PUBLICATIONS

Caballero, D., Araya, R., Kronholm, H., Viiri, J., Mansikkaniemi, A., Lehesvuori, S., Virtanen, T., & Kurimo, M. (2017). ASR in Classroom today: Automatic Visualization of Conceptual Networks in Science Classrooms. In *European Conference on Technology Enhanced Learning* (pp. 541 - 544). Springer, Cham.

Schwarzenberg, P., Navón, J., Nussbaum, M., Pérez-Sanagustín, M., & **Caballero, D.** (2017). Learning experience assessment of flipped courses. *Journal of Computing in Higher Education*, 1 – 22.

Sharma, K., **Caballero, D.**, Verma, H., Jermann, P., & Dillenbourg, P. (2015). Looking AT versus looking THROUGH: A dual eye-tracking study in MOOC context. In Proceedings of 11th International Conference of Computer Supported Collaborative Learning (Vol. 1, pp. 260-267). ISLS.

Prieto, L., Yun. W., **Caballero, D.**, Dillenbourg, P. (2014). Review of augmented paper systems in education: an orchestration perspective *Journal of Educational Technology & Society, 17*(4), 169 – 185.

Caballero, D., Riesen, S.A.N, Álvarez, S., Nussbaum, M., de Jong, T., & Alario-Hoyos, C. (2014). The effects of Whole-class Interactive Instruction with Single Display Groupware for Triangles. *Computers & Education, 70*, 203 – 211

Szewkis, E., Nussbaum, M., Rosen T., Ábalos, J., Denardin, F., **Caballero, D.**, Tagle, A., & Alcoholado, C. (2011). Collaboratiton within large groups in the classroom. *International Journal of Computer Supported Collaborative Learning*

ORAL PRESENTATIONS AND LECURING

Public Lesson lecturer
APEC 2019, Valparaíso and Temuco, Chile 2019

- Two public lesson being observed by more than 400 participants
- Lesson held in the National Congress
- The topic was Algorithmic Thinking
- Lesson included in the APEC seminar about computational thinking implementation in educational curriculum
- Supported by the Curriculum and Evaluation Department of the Ministry of Education and Universidad Católica de Valparaíso

Teaching and learning seminar of integrated STEM 2017
Centro de Investigación Avanzada en Educación, Universidad de Chile, Chile

Learning environment for STEM 2016
Centro de Investigación Avanzada en Educación, Universidad de Chile, Chile

CONFERENCE AND POSTER PRESENTATIONS

Caballero, D., Viiri, J., Araya, R., Virtanen, T., Kurimo, M., Mansikkaniemi, A., Kronholm, H., Pertilä, P. (2017). A system for automatic speech recognition and observation of classroom interactions. *EARLI Conference*. Tampere, Finland

Kronholm, H., **Caballero, D.**, Araya, R., Viiri, J. (2016). A smartphone application for ASR and observation of classroom interactions. Finnish Mathematics and Science Education Research Association (FMSERA) annual symposium.

Nussbaum, M., **Caballero, D.,** Oteo, M., Gelerstein, D. (2014) Collaboration and Critical Thinking, Proceedings 20th International Conference. *CRIWG 2014*. Santiago, Chile.

Prieto, L., Yun, W., **Caballero, D.**, Sharma, K., Dillenbourg, P. (2014). Studyng Teacher Cognitive Load in Multi-tabletop Classrooms Using Mobile Eye-tracking. *ITS' 2014 Conference*. Dresden, Germany

Caballero, D., Yun, W., Prieto, L., Dillenbourg, P. (2014). Single locus of control in a tangible paper-based tabletop application: an exploratory study. *ITS' 2014 Conference*. Dresden, Germany

RESEARCH SKILLS

- Computer enhanced learning and teaching technologies
- User experience design and evaluation
- Multidisciplinary team work and collaboration
- Mixed-methods research analysis
- Online learning technologies and student motivation
- Machine learning techniques for audio analysis

HONORS AND AWARDS

Best Poster Award 2017
European Conference of Technology Enhance Learning (EC-TEL'17)

Best Teacher Award 2016

School of Engineering, Pontificia Universidad Católica de Chile, Chile
- Part-time category based on students' evaluation

Excellence Scholarship for doctoral studies 2011
Pontificia Universidad Católica de Chile

Excellence Scholarship for doctoral studies 2012
Government of Chile

GRANTS

Government of Chile
Postdoc fellowship 2018 – Present
- CAD 87'400
- *Comisión Nacional de Investigación Científica y Tecnológica (CONICYT)*

Government of Switzerland
Excellence Scholarship for doctoral internship in Switzerland. 2013 – 2014
- CAD 31'100
- Département fédéral de l'economie, de la formation et de la recherche (DEFR)

Government of Chile
Excellence Scholarship for doctoral studies in Chile 2012 – 2015
- CAD 59'200
- Comisión Nacional de Investigación Científica y Tecnológica (CONICYT)

RESEARCH SERVICE

Reviewer
- Computers & Education
- Journal of Computer Assisted Learning

Program Chair Reviewer
- Orchestrated Collaborative Classroom Worshop at Computer-Supported Collaborative Learning. CSCL2015
- Sociedad Chilena de Ciencia de la Computación (SCCC)
- EC-TEL 2018

OTHER SKILLS

- Programming Languages: Python, C++, C#, Java, R
- Microsoft's cloud computing system management, Azure

REFERENCES

Professor Miguel Nussbaum
Computer Science Department, Pontificia Universidad Católica de Chile
Santiago, Chile

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Professor Pierre Dillenbourg
Computer-Human Interaction for Learning and Instruction, École Polytechnique Fédérale de Lausanne
Lausanne, Switzerland
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Professor Roberto Araya
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