



Michael Lodi

PhD student in CS and educator

Areas of research

Computer science education: computational thinking, growth mindset, creative computing and constructionism, difficulties in learning to program

Current position

Nov 2016 - **PhD candidate**, *Computer Science and Engineering*, University of Bologna.
now Supervisor: Simone Martini
Thesis area: Computational thinking and computer science education
3 years PhD grant, funded by Italian Ministry of Education

Collaborations and Memberships

2014-now Collaborator, content producer and translator for "Programma il Futuro" Project, Italian localization of Code.org
2016-now Member of ACM SIGCSE
2017-now Member of the scientific committee of the Italian Problem Solving Olympiad
2017-now Member of INRIA Focus research team
2018-now Collaboration in ISEE European project

Education

University of Bologna

2015 **Teaching License in CS for High School**, *99/100*.
Master degree level courses in CS Education and Pedagogy, teaching apprenticeship
2010–2014 **Master degree in Computer Science**, *110/110, cum laude*.
Supervisor: Simone Martini
Thesis Title: *Learning computational thinking, learning to program*
2007–2010 **Bachelor degree in Computer Science**, *110/110, cum laude*.
Supervisor: Ugo Dal Lago
Thesis Title: *Functional programming in sublinear space: a library of arithmetic functions*

Teaching Experience

2016-now Teaching assistant for an *Introduction to Computer Science* course, Bachelor degree in Mathematics, University of Bologna
2016 High School Teacher of Computer Science

- 2015-now Teacher for many *Laboratories of Creative Computing*, Master degree in Primary Education / Bachelor degree in Social Educator, University of Bologna
- 2014-now Teacher in several public and private teacher training courses about Computational Thinking, Creative Computing and Scratch
- 2014-now Creative computing teacher/mentor for creative computing, Scratch, Python, tinkering, robotics and electronics events for kids (7-14), for private organizations, public schools and mainly as volunteer for CoderDojo Bologna

Publications

- 2014 **M. Lodi**. "Learn computational thinking, learn to program". *Mondo Digitale* Volume 13, Issue 51, 1 June 2014, Pages 822-833. *Article extracted from my Master degree Thesis, about computational thinking and difficulties in learning to program*. In Italian.
- 2016 R. Marchignoli, **M. Lodi**. "EAS e pensiero computazionale". *La Scuola*, Brescia. *Theoretical book about situated learning and computational thinking*. In Italian.
- 2016 M. Giordano, C. Moscetti. "Coding e Pensiero computazionale". Preface by **M. Lodi**. ELI-La Spiga Edizioni. *Preface to a teacher guide for primary school about coding and computational thinking*. In Italian.
- 2017 I. Corradini, **M. Lodi**, E. Nardelli. "Computational Thinking in Italian Schools: quantitative Data and Teachers' Sentiment Analysis after Two Years of 'Programma il Futuro' Project". In Proceedings of ITiCSE'17, July 03-05, 2017, Bologna, Italy.
- 2017 I. Corradini, **M. Lodi**, E. Nardelli. "Conceptions and misconceptions about computational thinking among Italian primary school teachers". In Proceedings of ICER 2017, August 14-16, 2017, Tacoma (WA), USA.
- 2017 **M. Lodi**, "Growth mindset in computational thinking teaching and teacher training". In Proceedings of ICER 2017, August 14-16, 2017, Tacoma (WA), USA. *Abstract and poster*.
- 2017 **M. Lodi**, S. Martini, E. Nardelli "Do we really need computational thinking?". *Mondo Digitale*. Volume 16, Issue 72, November 2017. In Italian.
- 2017 E. Nardelli, L. Forlizzi, **M. Lodi**, et al. "Proposal for a National Curriculum for Informatics in School". CINI Consortium. *Working document: proposal for a curriculum to teach Computer Science in K-10 education in Italy*. In Italian.
- 2018 I. Corradini, **M. Lodi**, E. Nardelli. "Coding and Programming: What Do Italian Primary School Teachers Think? (Abstract Only)". In Proceedings of SIGCSE '18, February 21-24, 2018, Baltimore (MA), USA.
- 2018 **M. Lodi**. "Computational Thinking: from "samba schools of computation" to CoderDojos". *Didamatica 2018 - To appear in Mondo Digitale*. *Historical analysis of the origin of the term "computational thinking" and its relationship with Papert's constructionism and its implementation in CoderDojos*. In Italian.
- 2018 O.Levrini, E. Barelli, **M. Lodi**, et al. "The perspective of complexity to futurize STEM education: an interdisciplinary module on Artificial Intelligence ". Oral presentation at GIREP 2018, 9-13 July 2018, San Sebastian, Spain
- 2018 M. Monga, **M. Lodi**, D. Malchiodi, A. Morpurgo, B. Spieler. " Learning to Program in a Constructionist Way." Proceedings of Constructionism 2018, Vilnius, Lithuania, August 2018.

- 2018 **M. Lodi**. “Can Creative Computing Foster Growth Mindset?” Joint Proceedings of the 1st Co-Creation in the Design, Development and Implementation of Technology-Enhanced Learning workshop (CC-TEL 2018) and Systems of Assessments for Computational Thinking Learning workshop (TACKLE 2018) co-located with 13th European Conference on Technology Enhanced Learning (ECTEL 2018). Leeds, United Kingdom, September 3rd, 2018.
- 2018 I. Corradini, **M. Lodi**, E. Nardelli. “An Investigation of Italian Teachers’ View on Coding and Programming.” In: Pozdniakov S., Dagienė V. (eds) Informatics in Schools. Fundamentals of Computer Science and Software Engineering. ISSEP 2018. Lecture Notes in Computer Science, vol 11169. Springer, Cham.
- 2018 L. Forlizzi, **M. Lodi**, V. Lonati, C. Mirolo, M. Monga, A. Montresor, A. Morpurgo, E. Nardelli. “A core informatics curriculum for Italian compulsory schools.” In: Pozdniakov S., Dagienė V. (eds) Informatics in Schools. Fundamentals of Computer Science and Software Engineering. ISSEP 2018. Lecture Notes in Computer Science, vol 11169. Springer, Cham.
- 2018 R. Borchia, A. Carbonaro, G. Casadei, L. Forlizzi, **M. Lodi**, S. Martini. “Problem Solving Olympics: an inclusive education model for learning Informatics.” In: Pozdniakov S., Dagienė V. (eds) Informatics in Schools. Fundamentals of Computer Science and Software Engineering. ISSEP 2018. Lecture Notes in Computer Science, vol 11169. Springer, Cham.
- 2019 L. Branchetti, O. Levrini, E. Barelli, **M. Lodi**, G. Ravaioli, L. Rigotti, S. Satanassi, G. Tasquier. “STEM analysis of a module on Artificial Intelligence for high school students designed within the I SEE Erasmus+ Project (Poster).” Eleventh Congress of the European Society for Research in Mathematics Education (CERME11). February 6-10, 2019.
- 2019 Articolo ITICSE 2019
- 2019 Articolo TIM constructivist
- 2019 Articolo Milanese IOI
- 2019 Articolo/Oral presentation? ESERA19: “Epistemological Activators To Value S-T-E-M Concepts For Education”
- 2019 Lodi, Davoli, Montanari, Martini. Capitolo di libro in...

Talks

Conference presentations

- 2014 Paper presentation: “Imparare il pensiero computazionale, imparare a programmare.” DIDAMATICA 2014, Napoli
- 2015 “Don’t think like a computer, think like a computer scientist!” – 7th international Scratch conference Scratch2015AMS, Amsterdam
- 2017 “Develop programming projects, grow your intelligence!” International Scratch Conference Scratch2017BDX, Bordeaux
- 2018 Paper presentation: “Conceptions and Misconceptions about Computational Thinking among Italian Primary School Teachers”. ICER ’17, Tacoma, WA, USA, August 18-20, 2017.
- 2018 Short Paper and poster presentation: “Growth Mindset in Computational Thinking Teaching and Teacher Training”. ICER ’17, Tacoma, WA, USA, August 18-20, 2017.

- 2018 Paper presentation: "Computational Thinking: from "samba schools of computation" to CoderDojos". DIDAMATICA 2018, Cesena, Italy
- 2018 Presentation "A Creative Approach to Computational Thinking with Scratch" – international Scratch conference 2018 – (July 2018, MIT, Boston, USA)
- 2018 Working Group presentation of the relative paper (joint with all other authors) "Learning to Program in a Constructionist Way" – Constructionism 2018 – (August 2018, Vilnius, Lithuania)
- 2018 Presentation of the paper "Can Creative Computing Foster Growth Mindset?" – Systems of Assessments for Computational Thinking Learning workshop (TACKLE 2018) co-located with 13th European Conference on Technology Enhanced Learning (ECTEL 2018) (Leeds, United Kingdom, September 3rd, 2018)
- 2018 Presentation "Code to learn... Math!" – 1st Meeting of the Italian-French Interdisciplinary Network for Languages and Epistemology in STEM Education (Bologna, 19-21 September 2018)
- 2019 Presentation Articolo ITICSE 2019

Invited talks and seminars

- 2014 Talk: "Do not think like a computer, think like a computer scientist!" during an event with M. Resnick. University of Bologna
- 2016 Talk: "Introduction to computational thinking" for the "Laboratorio Analitico Bolognese". University of Bologna
- 2017 Lesson: "Think like computer scientists... not like computers!" for a MBA. Bologna Business School.
- 2017 Lesson: "Learn to program, to be creative and to think like computer scientists... to learn! How?" for "Collegio Superiore", the school of Excellence of University of Bologna
- 2017 Talk: "Computational thinking and programming in primary school". Education fair DIDACTA 2017, Firenze, Italy
- 2017 Talk: "Girls, be brave: your intelligence can grow! (But "coding" is not enough!)" Festival of Technical Culture, Bologna, Italy
- 2018 Talk: "About "coding", computational thinking, informatics and creativity". Final of Italian Problem Solving Olympics, Cesena, Italy
- 2018 Talk: "Computational thinking: how to develop it and why". University of Ferrara, Italy
- 2018 Lab: "Code to learn... Math: use of programming to learn mathematical concepts". University of Ferrara, Italy
- 2018 Seminar: "Computational Thinking and Growth Mindset". Department of Computer Science and Software Engineering, University of Canterbury, Christchurch, New Zealand (30th November 2018)
- 2019 Talk: "Informatics is (not) magic!". During the event "Logics, Problem Solving, Creativity". IIS Manfredi Tanari, Bologna (4th June 2019)

Awards

- 2018 3rd place and "people's choice" at "Three Minute Thesis" University of Bologna competition
- 2015 "Premio Etic" for best Master Thesis related to Computer Science Ethics. Awarded by AICA and Rotary International

- 2011 “Premio AILA 3+2”, for best Bachelor Thesis in Logic. Awarded by the Italian Association for Logic and Applications (AILA)
- 2007 Monetary price and inclusion in the “Italian list of excellences” for achieving “honors” in High School Final Exam

Service to the profession

- 2017 Volunteer help for the organization of ITiCSE'17, July 03-05, 2017, Bologna, Italy
- 2018 Reviewer for the Italian conference on Informatics and Didactics (DIDAMATICA 18)
- 2019 Reviewer for ACM SIGCSE ITiCSE '19 conference
- 2019-now Reviewer for Italian Journal of Educational Technology (IJET)
- 2019 Member of the Local Organising Committee of the 13th Conference of European Science Education Research Association (ESERA '19)

Schools and visits

- 2018-2019 Visiting academic at University of Canterbury, Christchurch, New Zealand, under the supervision of Prof. Tim Bell (Oct '18 - Apr '19)
- 2017 BISS Bertinoro International Spring School
- 2013 Three days visit at Sophia Antipolis, France. Project “Mediterranean Students Days @ Campus SophiaTech”
- 2011, 2012 AILA Summer School in Logic

Thesis Co-Advisor

- 2016 Francesco Olivari, Master degree in Primary Education
- 2018 Giulia Dalmonte, Master degree in Primary Education
- 2018 Filippo Bartolini, Bachelor degree in Computer Science
- 2018 Federica Veronesi, Master degree in Mathematics
- 2018 Alessandro Cocilova, Master degree in Computer Science
- 2019 Giulia Dalmonte, Master degree in Primary Education
- ongoing Ottavia Sandrini, Bachelor degree in Electronics
- ongoing Dorotea Trestini, Bachelor degree in Computer Science
- ongoing Luca Pausini, Master degree in Primary Education
- ongoing Giorgia Giunchi, Master degree in Primary Education
- ongoing Cecilia Baldi, Master degree in Primary Education
- ongoing Emanuele Monaca, Master degree in Primary Education

Languages

Italian (native), good knowledge of spoken and written English (B2/C1), basic knowledge of German.