

Federico Boem, Ph.D.

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I have a background in philosophy of science with strong interests in sociology and ethics of scientific research. I have worked on the impact of big data in scientific research (in particular biomedical/oncological research).

AREAS OF SPECIALIZATION

Philosophy of the Life Sciences (especially Biomedicine, Molecular Biology and Bioinformatics), Philosophy of Science, Bioethics, STS

AREAS OF COMPETENCE

Logic, History of Philosophy, History of Science, STS, Bioethics

CURRENT POSITION

Visiting Lecturer of Ethics and Politics of Science and Technology, (King's College, Department of Philosophy)

Adjunct Lecturer of Logic and Critical Thinking, (University of Milan, Department of Oncology and Hemato-oncology)

Instructor of Logic and Critical Thinking for the association "Logical Education" (<http://www.logicaleducation.it>)

EDUCATION

Ph.D. in Foundations of the Life Sciences and Their Ethical Consequences (2015), Scuola Europea di Medicina Molecolare(SEMM)/University of Milan, Italy

Visiting Student (2014), European Bioinformatics Institute (EBI), Cambridge, UK

MA with *merit* (2011) in History and Philosophy of Biology, University of Exeter, UK

Laurea *magna cum laude* (2009) in Logic and Philosophy of Science, University of Florence, Italy

PEER-REVIEWED PUBLICATIONS

- 'The Main Faces of Robustness'. *Dialogue and Universalism*, 3, 157-172 (2017)
- 'Orienteering Tools: Biomedical Research with Ontologies'. *Humana.Mente*, (2016)
- 'Why genes are like lemons' (with Emanuele Ratti, Mattia Andreoletti, Giovanni Boniolo). *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, doi: 10.1016/j.shpsc.2016.04.005 (2016)
- 'Ontological Issues in the Life Sciences' (with James DiFrisco, Gaëlle Pontarotti, Guillaume Schlaepfer, Ewelina Sokolowska, and Eva Fernández-Labandera). *Biological Theory*, doi: 10.1007/s13752-015-0207-1 (2015)
- 'Junk or Functional DNA? ENCODE and the Function Controversy' (with Pierre-Luc Germain and Emanuele Ratti). *Biology & Philosophy* doi: 10.1007/s10539-014-9441-3 (2014)

- 'Diverse Perspectives on Ontology' (with Emilio Sanfilippo, Francesca Quattri, Aleksandra Sojic, Emanuele Ratti, Gaoussou Camara and Eric Chuck). *Applied Ontology* 8(8), 59-71, doi: 10.3233/AO-130121 (2013)

OTHER PUBLICATIONS

Volume contributions:

- In Silico Clinical Trials: a Possible Response to Complexity in Pharmacology, (with Marta Bertolaso and Ilaria Malagrinò) in *Uncertainty in Pharmacology*, (Edited by Barbara Osimani) - *forthcoming*
- 'Towards a Notion of Intervention in Big-Data Biology and Molecular Medicine' (with Emanuele Ratti) in *Philosophy of Molecular Medicine: Foundational Issues in Research and Practice* (Edited by Giovanni Boniolo and Marco J Nathan), Routledge (2017)
- 'Stratification and Biomedicine: How Philosophy Stems from Medicine and Biotechnology' (with Giovanni Boniolo and Zsuzsa Pavelka) in *The Future of Scientific Practice* (edited by Marta Bertolaso), Pickering & Chatto, 2015
- 'Dalla filosofia della biologia alla filosofia dalla biologia' in *Vivi perché diversi* (edited by Elena Gagliasso), ETS edizioni, 2013

Editing:

- *Elementi per una genetica forense*, (co-edited with Luca Marelli), Mondadori, 2012

TEACHING EXPERIENCE

- Visiting Lecturer for the course "Ethics and Politics of Science and Technology", King's College (UK) (2018)
- Adjunct Lecturer in Logic for the course "Logica e Retorica", University of Milan (2016 - current)
- Visiting Lecturer in Philosophy of Science at Campus Bio-Medico di Roma (2015 - 2016)
- Visiting Lecturer in Bioethics at SEMM graduate programme (2015 - 2017)
- Visiting Lecturer Logic and Philosophy of Science at SEMM graduate programme (2016)
- Teaching Assistant in Logic for the course "Logica e Retorica", University of Milan (2013, 2014, 2015)

SELECTED PRESENTATIONS

"Vaccine hesitancy, epistemological and ethical issues" - at *Chi ha paura dei vaccini. Filosofia, etica, comunicazione* conference (organized by ASSR Emilia Romagna) , Bologna, September 2017

"Molecular Biology vs Bioinformatics: the method and the demarcation" - at SILFS Triennial International Conference, Bologna, June 2017

"Why genes are like lemons" - at SILFS conference, Urbino, June 2016

"Defining life?" - presentation at the conference "Materia e materia vivente", University of Florence. June 2012

"What is stemness?" - at the international conference of the German Society for Philosophy of Science/Gesellschaft für Wissenschaftsphilosophie (GWP), 11-14 March 2013 - University of Hannover

"The gene after encode: a Wittgensteinian approach" - at the ISHPSSB, 7-12 July 2013 - University of Montpellier III

"Models in bioinformatics - GO a representation of what?" - at EPSA conference, 28-31 August 2013 - University of Helsinki

"Bio-ontologies as orienteering tools in biomedical research" – at third meeting of the European Advanced Seminar in the Philosophy of the Life Sciences (EASPLS), 1-5 September 2014 – Konrad Lorenz Institute in Klosterneuburg, Vienna

"Mapping Biological Knowledge. From Particular Data to General Phenomena" – at 5th Biennial Conference of the Society for Philosophy of Science in Practice (SPSP), Aarhus, June 2015

SCHOLARSHIPS

- 2014-2015: Umberto Veronesi's Foundation scholarship (18,500 euro gross per year)
- 2012-2013: European School of Molecular Medicine scholarship (18,500 euro gross per year)

GRADUATE COURSEWORK (All courses were conducted in English)

- Scientific Methodologies
- Fundamental Principles in Molecular Oncology
- Molecular Genetics
- Evolutionary Biology
- Foundations of Probability and Statistics
- Philosophy of the Life Sciences
- Computation for Philosophers
- General Philosophy of Science
- Introduction to Bioinformatics
- Biolaw
- STS and the Life Sciences
- Developmental Biology and Animal Models
- Foundation of Ethics and Bioethics
- Bioethics
- History of Molecular Medicine
- Network Biology

LABORATORY ROTATIONS AND EXPERIMENTAL TECHNIQUES

• January 2013 – December 2015

Gioacchino Natoli's group - Transcriptional control in inflammation and cancer (IEO)

- PCR,
- Transfection,
- ChIP-seq,
- Elements of R programming,
- Gene Ontology enrichment analysis

• February 2012- December 2012.

Giuliana Pelicci's group: Biology and signal transduction of normal and cancer neural stem cells. (IEO)

- Theoretical work on the notion of stemness.
- Practical experience of Western blot technique

MEMBERSHIPS

Member of SILFS (Società Italiana di Logica e Filosofia della Scienza)

Member of BIOM (Società Italiana di Storia, Filosofia e Studi Sociali della Biologia e della Medicina)

OTHER EXPERIENCES

2012 - Summer School in Ontological Analysis, IAOA, University of Trento

2010 - Natural History Museum of the University of Florence, curator assistant on Museum collection

REFERENCES

- Prof. Giovanni Boniolo, University of Ferrara & Institute for Advanced Study Technische Universität München (Italy & Germany),
giovanni.boniolo@unife.it
- Dr. Paola Roncaglia, EBI, Cambridge (UK), paola@ebi.ac.uk
- Prof. Raffaella Campaner, University of Bologna, raffaella.campaner@unibo.it
- Prof. David Teira, UNED (Spain), dteira@fsof.uned.es
- Prof. Federica Russo, University of Amsterdam, F.Russo@uva.nl
- Prof. Marco Nathan, University of Denver, marco.nathan@du.edu