TRANCHES DE PhD – MATTEO FARINELLA

And his lesson: never give up with your extracurricular interests!

by *Enrico De Angelis*

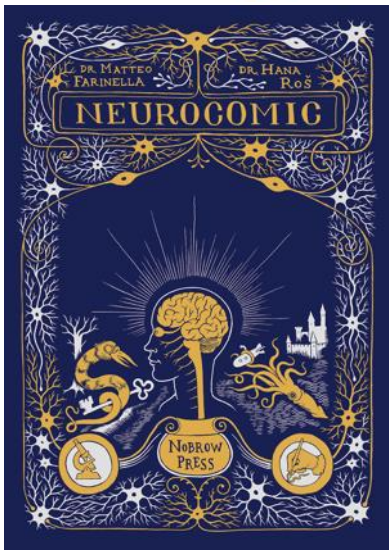
Happy new year! And let me start the new year with a PhD-story, that of a child who had a great passion for comics: his name is Matteo and he is from Bologna.
So, Matteo had the same great passion as many other children all over the world: comics books. He also liked drawing and drawing stories and, as a child, his dream was being a graphic novelist.
Once a young man, he chose another way: he was trained as biologist in the local University of Bologna and, once graduated, he crossed the Channel to start what was expected to be a brilliant career in *Computational Neuroscience*, starting a PhD program in a prestigious British lab, @UCL.
But his great passion was not turned off nor extinguished: between pipettes, microscope slides and scientific writing, Matteo was very often drawing. For fun, but also because «*drawing* – he explained later – *for me is just part of the thinking process*».

Something happened in the last year of his PhD program, when, with a colleague, he applied for a Wellcome Trust grant. *Wellcome* is scientific trust funding applied research, basic science (mainly but not only related to health care) and also some more, often as a charity.

> «*Wellcome Trust home was at a short walk from our laboratory. They have an open museum and I was a frequent visitor of it, attending scientific meetings as well as their reading rooms, so it was easy to apply to a call for divulgation initiatives. We unexpectedly got funding for our proposal: to tell the story of neuroscience in a comics book, and our work became even tougher: we were already working in the lab and writing papers together, we added a comics book that was written in parallel with my PhD thesis*».

Hana Roš, the other author, is still working at UCL as Neuroscientist, while Matteo Farinella, after his PhD, progressively became a professional graphic novelist, but both are very proud of that period, that gave the birth to the book *NEUROCOMICS* (2012, Nobrow Ltd, in the picture).
Although it deals with a very specialist subject , it is appreciated by a wide public:

> «*in our plans, we were going to print few hundreds of copies and sell them only in specialistic congresses, beyond our expectations, it had a great success and it is already translated in ten languages*».



Although it is a comics book, it is considered a masterpiece by experts.
If you want to deepen the subject, you can watch this short video (among many others in youtube) where Matteo tells how it happened to be «hijacked» from (neuro)science to science communication: it was his final speech, after a two years as Presidential Scholar, for "Society and Neuroscience" at the Columbia University, where he acting as *Scientific Multimedia Producer* at the Zuckerman Institute.

The story teaches few things.
First it confirms that comics are one of the most effective divulgation media.
Second, that you must never give up with your hobbies and extracurricular interests:

> «*they may seem a useless diversion, even lost time, in particular when in the middle of your PhD but … you may always have some use of them!*».

CALLS AND EVENTS

CALL FOR TUTORING ACTIVITIES 2020

The PhD School has issued a call for tutoring activities for PhD candidates.
Tutoring activities include

- assistance for new PhD students during the induction, with particular focus on International students
- assistance for new PhD students during the enrolment stages, with particular focus on International students
- taking part in training, and supporting PhD teaching
- preparation of informative material
- assistance for PhD candidates with Department services.

Tutoring activities may add up to 60 hours per year. The remuneration is set at 20 Euro per hour. It is exempt from income tax (IRPEF) and from the Regional tax on productive activities (IRAP).
The call is published at the following webpages
http://www.dottorato.polimi.it/en/during-your-phd/tutors-20192020/ (English)
http://www.dottorato.polimi.it/it/carriera-dottorandi/tutori-20192020/ (Italian)

Deadline for applications set at noon (Italian time) of Wednesday, 22 January 2020.

Deadline: 22nd January 2020

IDEA LEAGUE DOCTORAL SCHOOL 2020
ETHICS OF SCIENCE AND TECHNOLOGY

A doctoral school on "Ethics of Science and Technology" will be held in 2020 in Aachen (29 Feb – 4 March), Delft (22-26 April), and Politecnico di Milano (Lecco campus, 24-28 June).
The Doctoral School is organized by IDEA League, a research network of leading European technical universities, including TU Delft, EUT Zurich, Politecnico di Milano, RWTH Aachen and Chalmers University.

Please inspect the flyer, or the website for further information and to apply.

Five candidates will be selected from Politecnico di Milano.
Candidates will be selected in order to maximize the representation in terms of research area, nationality and gender.
The selected candidates are expected to participate in all the three modules of the Doctoral School, so candidates are asked to please double-check their availability in the School dates before applying to the school.
Upon successful completion of the three modules, candidates will earn five credits corresponding to the PhD School course "Ethics and Technology".

Doctoral candidates enrolled at one of the five IDEA League universities (including Politecnico di Milano) will receive a registration and accommodation fee waiver, and will have to pay only for their own travel costs. As for the travel costs, participants from Politecnico di Milano will be allowed to use their own research endowment (Dote Dottorale), which to this aim will be increased by 500 EUR.

For more specific information about the Doctoral School, please ask to the course responsible Prof. Viola Schiaffonati viola.schiaffonati@polimi.it, or refer to this email address phd-dean@polimi.it

Application deadline: Monday, 13 January 2020

ITALIAN COURSES – II SEMESTER A.Y. 19/20

Students who want to attend the Italian classes are required to interact with the language course Catalogue. All stages are handled there.

Students will be able to register and carry out the online placement test from the 20th of January till the 6th of February 2020.

Here the path: Online Services → Mobility → language course Catalogue

Students will be able to display on the Catalogue the guidelines about how to carry out the placement test, as well as the instructions related with the payment terms.

PAY ATTENTION: the placement test is not an exam and has no official value. It is a level test designed to set up homogeneous classes. We warmly recommend the students to do it by themselves.

FEATURES OF THE COURSE
- Levels offered: absolute beginner (A0), beginner (A1), elementary (A2), intermediate (B1-B1+)
- The tuition fee amounts to 100 € to be paid by the attendees
- Classes twice a week: Monday/Wednesday or Tuesday/Thursday - from 6.15 to 8 p.m. – 40 hours in all

More information: italian-courses@polimi.it

ERASMUS+ GRANTS (OUTGOING MOBILITY FOR STUDY AND RESEARCH PURPOSES)

The call for the 2020/2021 International Mobility for study (including the Erasmus+ programme) has been issued.

The Erasmus Programme offers support for mobility of students within European programme countries as well as within a selection of Extra-UE partner countries (KA107). All Politecnico di Milano students apply in the "International mobility for study" section of their Online Services.
Application deadlines is 9 January 2020 (12:00 noon).

Please be informed that, although Switzerland does not take part in the Erasmus programme, Swiss institutions are also offered as possible mobility destinations (under the ACCORDI BILATERALI EXTRA UE option).
After selection for the programme, the host university has to accept the students for mobility, so for PhD candidates it is advisable to make contact with a research group in advance, to plan the visit.

For general information about the Erasmus Programme and for the lists of destinations available to PhD students please visit the webpages
https://www.polimi.it/en/services-and-opportunities/experience-abroad/erasmus-plus/
http://www.dottorato.polimi.it/en/during-your-phd/periods-abroad-and-stages/international-mobility-programs-outgoing/erasmus-outgoing-mobility-for-study-purposes/

The call is available at the webpage
https://www.polimi.it/en/services-and-opportunities/experience-abroad/study-mobility/erasmus/call/

More information: erasmus@polimi.it

MARTINELLI PRIZE FOR BEST MASTER OR PHD THESIS IN TERTIARY SECTOR OR SOCIAL RESPONSIBILITY AREAS

The Fondazione Fratelli Confalonieri issues a call for a prize to honor the memory of Prof. Felice Martinelli, who held the role of President of the Board of Auditors of the Foundation since its establishment.
The prize amounts to € 2,500.00 (including legal fees) and is aimed to the best Master's or Doctoral thesis in the areas of the Tertiary Sector or Corporate Social Responsibility.
Eligible thesis must have been discussed between 1 January 2019 and 1 April 2020.

For further information and to learn how to apply please inspect the enclosed call (in Italian).

Deadline: 1st April 2020

STARTING COURSES – PHD SCHOOL

COMMUNICATION STRATEGIES THAT SCORE IN WORLDWIDE ACADEMIA

Prof. Raimondi Manuela Teresa, Kilian Susanne Christine

The core objectives of the course are: - to introduce a theoretical framework of the Design Thinking (DT) principles showing the main references; - to show diverse perspectives and fields of application of DT; - to position DT in the broader context of innovation and design management, showing the connections with other innovation-related literature streams (e.g.: six-sigma, lean management and engineering-oriented methodologies, blue ocean strategy; NPD school; creativity management; etc.); - to distinguish the different scopes of DT and the different strands to which it is related (e.g.: "Sprint Execution"; "Creative Confidence"; "Innovation of meaning"; "Exploration vs. Exploitation"; etc.) - to illustrate how DT relates with organizational and societal transformation; - to illustrate how DT can support the development of entrepreneurial opportunities; - to illustrate how DT can support academic and non-academic research.

From 14th to 16th January 2020

COMPLEMENTARY DOCTORAL SKILLS

Prof. Biscari Paolo, De Angelis Enrico, Costa Fiammetta Carla Enrica, Tanelli Mara

The "Complementary Doctoral Skills" course consists in three independent modules.

Part 1. Assessing cognitive biases and affective states through data analytics I

Part 2. Discriminations and new technologies: risks and opportunities

Part 3. Digital (Scientific) Literature, Bibliographies and Bibliometrics

From 20th January to 27th March 2020

ETHICAL ASPECTS OF RESEARCH ON DUAL-USE TECHNOLOGIES

Prof. Masarati Pierangelo

Introduce ethical issues, with specific reference to research on dual-use products in aerospace engineering, and challenge the capability of students to identify potential ethical issues in their activity and address them

From 15th to 17th January 2020

ETHICS IN RESEARCH

Prof. Aliverti Andrea, Hughes Jonathan

The core objectives of the course are: - to introduce a theoretical framework of the Design Thinking (DT) principles showing the main references; - to show diverse perspectives and fields of application of DT; - to position DT in the broader context of innovation and design management, showing the connections with other innovation-related literature streams (e.g.: six-sigma, lean management and engineering-oriented methodologies, blue ocean strategy; NPD school; creativity management; etc.); - to distinguish the different scopes of DT and the different strands to which it is related (e.g.: "Sprint Execution"; "Creative Confidence"; "Innovation of meaning"; "Exploration vs. Exploitation"; etc.) - to illustrate how DT relates with organizational and societal transformation; - to illustrate how DT can support the development of entrepreneurial opportunities; - to illustrate how DT can support academic and non-academic research.

From 13th to 17th January 2020

EUROPEAN CULTURE

Prof. Chiodo Simona, Cardilli Lorenzo

Providing PoliMi PhD students (especially if they are not European, but the course is open to any student) with the essential cornerstones of the European Culture through the tools of the Humanities (especially Literature and Philosophy, from both a historical and a theoretical perspective).

From 13th to 27th January 2020

NEW DEMOGRAPHICS. SCIENCE, TECHNOLOGY AND DESIGN FACING THE "GRAND CHALLENGE" OF AGEING

Prof. Ranci Ortigosa Costanzo

The course is aimed to explore the different challenges posed to contemporary society by the ageing society, and the role played by technological, spatial and social innovation in providing solutions.

From 15th January to 11th March 2020

PROFESSIONAL COMMUNICATION

Prof. Di Blas Nicoletta

The goal is to enhance students' communication skills in: public speaking, written communication (special emphasis on project proposals), digital communication. A quote by MIT communication instructors summarizes the goal: "engineers who don't write [=communicate] well end up working for engineers who do write well".

From 10th to 31st January 2020

SULLA RESPONSABILITÀ DELLA TECNICA

Prof. Ossi Paolo Maria

CONTENUTI DEL CORSO 1. Scienza, tecnica e tecnologia - considerazioni preliminari; scienza vs tecnica; tecnica vs tecnologia. 2. Natura della prassi; teoria vs prassi; esperti e funzionari; prassi e tecnologia; caratteri originari della prassi umana; la ragione sociale; desiderio, strategia e decisione. 3. L'autoimitazione umana e gli automi; caratteri essenziali degli automi e critica; lineamenti storici; il ruolo del supporto strutturale e quello del "motore"; il simbionte tecnologico e la sua evoluzione; problemi aperti. 4. La scienza come vocazione; l'epoca del disincanto e il conflitto fra etica e scienza-tecnica; il principio responsabilità; il principio speranza; il principio disperazione; prudenza; relativismo e pluralismo; ragionando sull'immagine svalutata della scienza. 5. L'essere delle cose nel tempo; il nascondimento e il ruolo della scienza-tecnica; il pensare della scienza-tecnica e le sue conseguenze; il nichilismo tecnico. Un esempio: la brocca metafisica; la brocca scientifica; la brocca fenomenica.

From 6th January to 21st February 2020

SUSTAINABILITY METRICS, LIFE CYCLE ASSESSMENT AND ENVIRONMENTAL FOOTPRINT

Prof. Dotelli Giovanni, Lavagna Monica, Melia' Paco Vasco Aldo, Rigamonti Lucia

The objective of the course is to introduce to the use of environmental sustainability metrics as tools that measure the benefits achieved through a sustainability strategy, leading to informed environmental decisions. The course will explain in detail the LCA methodology, with examples and exercises.

From 27th January to 5th February 2020

THE PROCESS OF RESEARCH

Prof. Volonte' Paolo Gaetano

This course a ims at offering to Ph.D. students awareness of the social and institutional framework of doing research, with particular focus on research for planning,design and techno-scientific disciplines. lt provides a comprehensive and reflexive introduction to academic research and academic life.

From 14th January to 12th February 2020

STARTING COURSES – DOCTORAL PROGRAMMES

PHD IN *MECHANICAL ENGINEERING*

STATISTICS IN THE BIG DATA ERA

Prof. Panagiotis Tsiamyrtzis (Politecnico di Milano)

In the heart of industry 4 revolution is the aspect of big data. In this course we will view how big data affect existing statistical methods and we will propose tools that are capable to overcome the problems caused by the growth in the data dimension(s). During the course big data from real studies will be used to present the material and allow students to work on the various topics.

From 10th to 23th January 2020

MULTIBODY SYSTEM DYNAMICS

Prof. Federico Cheli (Politecnico di Milano)

Present the foundations and the state of the art in research on multibody system dynamics in the frame of computational mechanics. Present applications of multibody system dynamics to various fields of engineering. Provide understanding of the complexity of the problem and capability to choose the right tools for a broad variety of multidisciplinary problems.

From 27th January to 9th February 2020

PHD IN *INFORMATION TECHNOLOGY*

ADVANCES IN SYSTEM-ON-CHIP DESIGN

Prof. Christian Pilato

An inter-disciplinary course on the design, analysis and programming of complex SoC platforms, with an emphasis on (but not limited to) FPGA systems and secure architectures. This course aims at providing a comprehensive overview of the modern challenges, solutions, and projects in the design of heterogeneous System-on-Chip architectures. It covers both the design of complex architectures with state-of-the-art processors (e.g., ARM or RISC-V) and the evaluation of functional and non-functional properties of systems and components, with emphasis on hardware security.

From 13th to 31st January 2020

MICROCONTROLLERS FOR EMBEDDED SYSTEMS

Prof. Federica Alberta Villa

The course provides the hardware and firmware skills to develop embedded systems based on high-end 32-bit microcontrollers (ARM-Cortex M4), with hands-on laboratories employing a development system based on the Nucleo board by STMicroelectronics and a custom POLIMI expansion board.
The course provides all the concepts required to design an embedded system based on 32-bit microcontroller of the ARM-Cortex M family, through practical hands-on lessons.

From 14th January 14th February 2020

AUTOMATED VERIFICATION AND MONITORING OF TIMED SYSTEMS

Prof. Marcello Maria Bersani

The goal of this course is to present the state-of-the-art techniques and tools for the automated formal verification and monitoring of real-time systems, in particular those requiring a continuous notion of time. These techniques are especially useful for the formal analysis of safety-critical embedded and cyber-physical systems. The course provides the theoretical foundations of the formal analysis of real-time systems, and demonstrates some of the state-of-the-art tools in this field.

From 27th January to 4th March 2020

STATISTICAL SIGNAL PROCESSING IN ENGINEERING

Prof. Umberto Spagnolini

Statistical Signal Processing deals with manipulations, estimation and pattern analysis/recognition from one or more temporal series, or generally ordered series, with the quantitative analysis of the limits and statistical bounds in some typical conditions.
About the program of the course: the first part reviews the fundamentals of statistical signal processing, the second part is focused to selected areas where the methods are paired to some applications that are general enough to provide a useful background for many interdisciplinary context such as audio and digital communications, spectral analysis and harmonic decompositions,imaging and machine learning, navigation and estimation in networks.

From 28th January to 10th February 2020