


Carnegie Mellon /
University of Coimbra

Professional Master of Software
Engineering (MSE)

2010/2011



Carnegie Mellon



Carnegie Mellon
Focused on Innovation

6 Nobel prize winners
4 Turing award winners

Faculty: 1,426
Undergraduates: 5,951
Graduate and Doctoral Students: 5,420

CMU?



Tartan Racing is uniting a technical, cultural & revolution for a new class to advance the status in driver safety

TED Ideas worth spreading

Speakers Johnny Lee: Human-computer interaction researcher

Smiley Lore :-)
[Scott E. Fahlman](#)

A lot of people have asked me about this, so I thought I'd put the information here, linked under my [home page](#):

Yes, I am the inventor of the sideways "smiley face" (sometimes called an "emoticon") that is commonly used in E-mail, chat, and newsgroup posts. Or at least I'm *one* of the inventors.

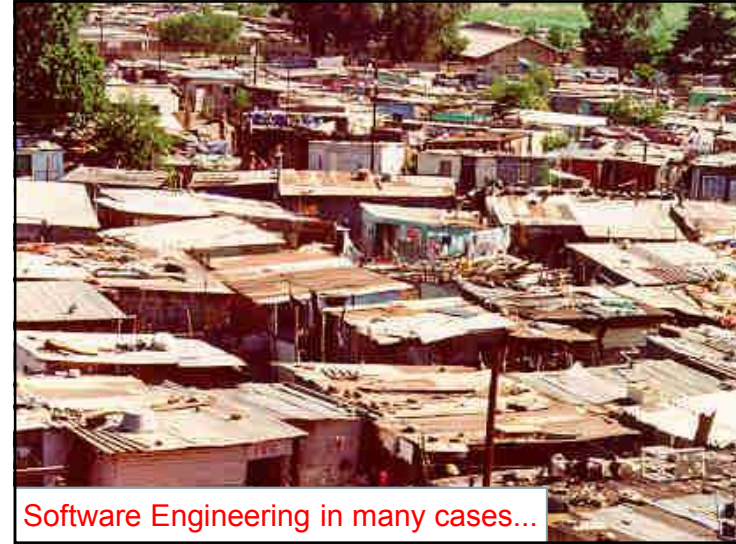
By the early 1980's, the Computer Science community at Carnegie Mellon was making heavy use of online bulletin boards or "bboards". These were a precursor of today's newsgroups, and they were an important social mechanism in the department – a place

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School of Computer Science

- Computer Science Department
- Human-Computer Interaction Institute
- Lane Center for Computational Biology
- Language Technologies Institute
- Machine Learning Department
- Robotics Institute
- Entertainment Technology Center
- Institute for Software Research**



What's wrong?

- Ever higher complexity, continuous change, super fast markets
- Large Scale systems are now the norm
- Low qualified labour is not the answer for creating high-value products
- The software industry needs Technical Leaders, and these will not just pop up in an ad-hoc way
- Projects live and die because of Technology, People and Processes; universities typically only teach the first.

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CMU/UC Master of Software Engineering

Develop future leaders of industrial software engineering practice

- Explicitly training graduates for:
 - Effectively managing teams, projects and processes
 - Creating architectures for large-scale systems
 - Implementing change inside of organizations
 - Becoming team leaders, project managers, software architects
- Program that top organizations send their engineers to do before becoming team and section leads
- Widely recognized as being the Number One Program in Software Engineering worldwide

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New Type of Degree

- 16 month INTENSIVE program
 - 4 months in Pittsburgh, USA
 - 12 months in Coimbra, Portugal
- Global classroom – Coimbra / Pittsburgh / India / Korea
 - Coimbra is THE offering for Europe!
 - Dual-degree: graduates earn a degree from Carnegie Mellon (US) and a degree from the University of Coimbra (Portugal)
- Two years of relevant professional experience REQUIRED
- Enrols only very bright people from anywhere in the world
- Professional Degree – from industry to industry

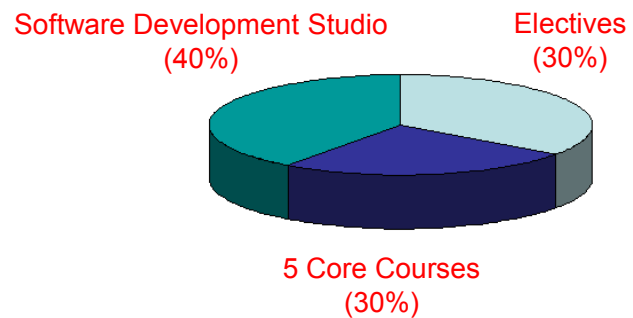
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Student Profile / Admission Requirements

- 2+ years of relevant experience in Industry
 - Most students average 5 years
 - Projects, size, teams, development methodology, languages, etc.
- Strong Motivation
 - Must show a strong desire to become a technical leader and to improve the way software is made
- Highly recommended
 - Letters sent directly to the admission committee
- TOEFL + GRE scores (<http://www.ets.org/>)
- Interview (in English)



MSE Overview



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Core Courses

- Methods of Software Development
 - Learn how to gather, manage and analyze requirements
- Managing Software Development
 - Learn different software development methods and lifecycles
- Analysis of Software Artifacts
 - Learn how to reason about artifacts, from specification to code
- Architectures for Software Systems
 - Learn how to systematically create architectures for large-scale systems
- Models of Software Systems
 - Learn how to formally model and reason about software

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Program Overview

- **Fall 2010** (@Coimbra): August→December
 - 17-651: Models of Software Systems 12U
 - 17-653: Managing Software Development 12U
 - 17-652: Methods: Deciding What to Design 12U
 - 17-671: Software Development Studio I 9U
 - 17-676: Software Engineering Bootcamp 3U
 - 17-656: Comm. for Software Engineers I 3U
- **Spring 2011** (@Pittsburgh): January→May
 - 17-654: Analysis of Software Artifacts 12U
 - 17-655: Architectures for Software Systems 12U
 - 17-672: Software Development Studio II 12U
 - 17-657: Communication for Software Engineers II 3U
 - *Elective* 9-12U

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Program Overview (2)

- **Summer 2011** (@Coimbra): May→August
 - 17-673: Software Development Studio II 48U
 - *Elective* 9-12U
- **Fall 2011** (@ Coimbra): August→December
 - 17-674: Studio Reflective Practice 12U
 - *Elective* 9-12U
 - *Elective* 9-12U

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Software Development Studio

- Working in teams of five, students analyze a significant and challenging problem, autonomously planning, managing and implementing a realistic solution for an industrial client
 - E.g. NASA, Google, General Motors, BOSH, U.S. Navy, etc.
- The studio project starts on the first day students arrive at the program and ends on the day they leave
- Each project is fully mentored by two faculty staff
- It serves as a learning forum for applying the techniques studied in the core courses

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Electives

- Courses that students take advancing their knowledge in specific areas
- Example courses:
 - Risk Management for Software Intensive Projects
 - Software Systems Security Engineering
 - Software Process Improvement
 - Managing Technical People
 - Software Measurement
 - Embedded Systems
 - (*among others*)



How Much and Who?

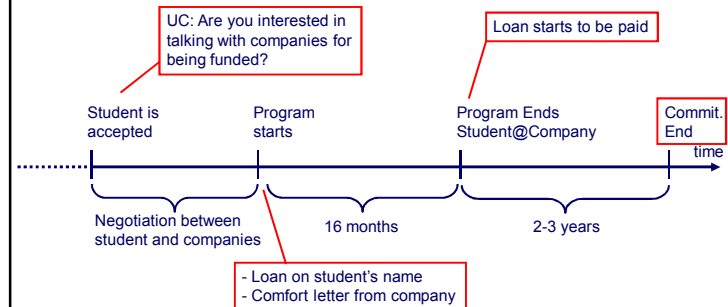
- Tuition: 10.000€
- Plus cost of living (Portugal + US)
- There's the possibility of being fully-funded for studying
- Our industrial partners hire you at the end!



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MSE Affiliate Sponsor's Program

- Companies are willing to fully-fund students giving them a job at the end of the program!
 - About 30k€, seen as a join-in bonus
 - In a way that is safe for the company and safe for the student



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Start your application now!

Deadline: 26/February/2010



About
pittsburgh.about.com

Questions?

Change your life!

MSE

MASTER OF SOFTWARE ENGINEERING

<http://mse.dei.uc.pt>

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