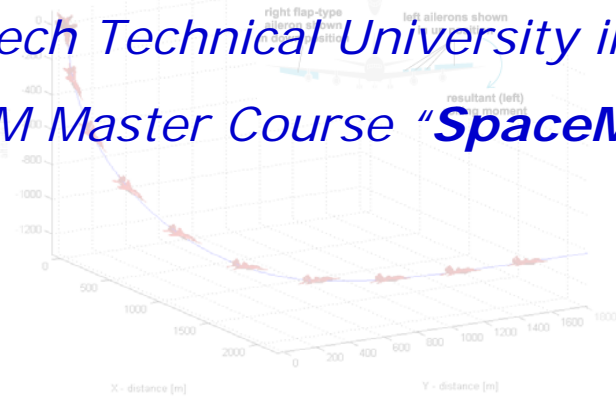


# Erasmus Mundus Master Course. Promotion.



*Martin Hromcik*  
*Czech Technical University in Prague*  
*EM Master Course "SpaceMaster"*



## Department of Control Engineering FEE CTU

- Staff: 60 (4 professors, 25 researchers) + 20 PhD students
- Budget: 1.5 M Euro  
(1/4 governmental subvention for teaching + 3/4 projects)
- Education of Bachelors, Masters and Doctors in Cont. Eng.
- Top level theoretical and applied research
- Technology and science promotion in industry and society

Mission: automatic control of engineering, physical, biological, medical, transport, economical and other systems in the broadest sense from theory, modeling, and design, through algorithms, software and hardware, networks and communication, automata, embedded systems and robotics, to practical applications, industrial realizations and their impact to society

**<http://dce.fel.cvut.cz>**

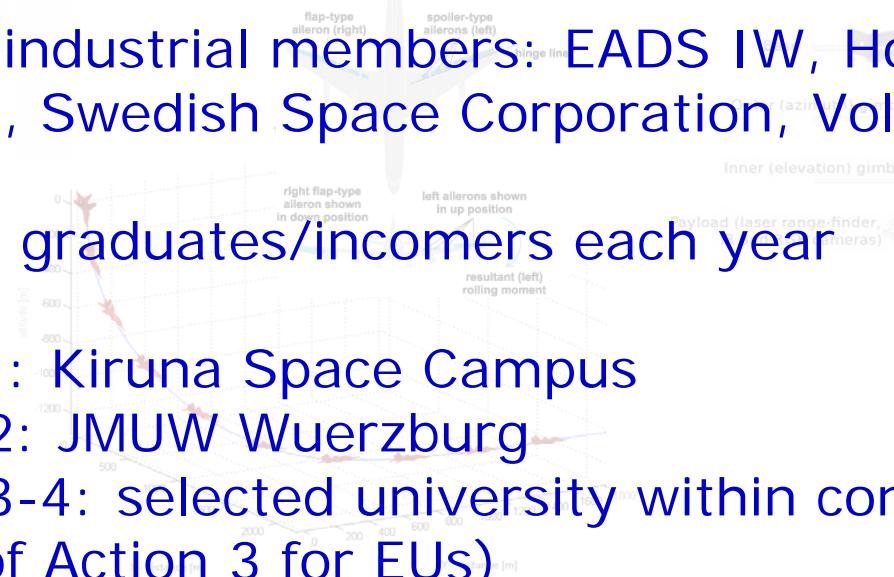
## SpaceMaster

- European Joint Master on Space Science and Technology
- Luleå University of Technology (Coordinator), SE  
Cranfield University, UK  
Czech Technical University, CZ  
Helsinki University of Technology, FIN  
Julius-Maximilians Universität Würzburg, GER  
Université Paul Sabatier, FR



## SpaceMaster

- Partnership with Shanghai Jiao Tong University, Stanford University, University of Tokyo, Utah State University
- Associated industrial members: EADS IW, Honeywell Aerospace, Swedish Space Corporation, Volvo Aerospace
- Roughly 50 graduates/incomers each year
- Semester 1: Kiruna Space Campus  
Semester 2: JMUW Wuerzburg  
Semester 3-4: selected university within consortium  
(option of Action 3 for EUs)





# SpaceMaster

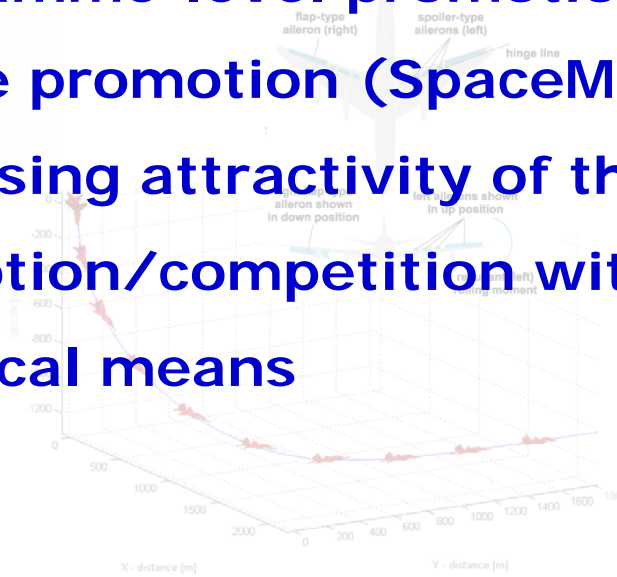


IR and RGB cameras



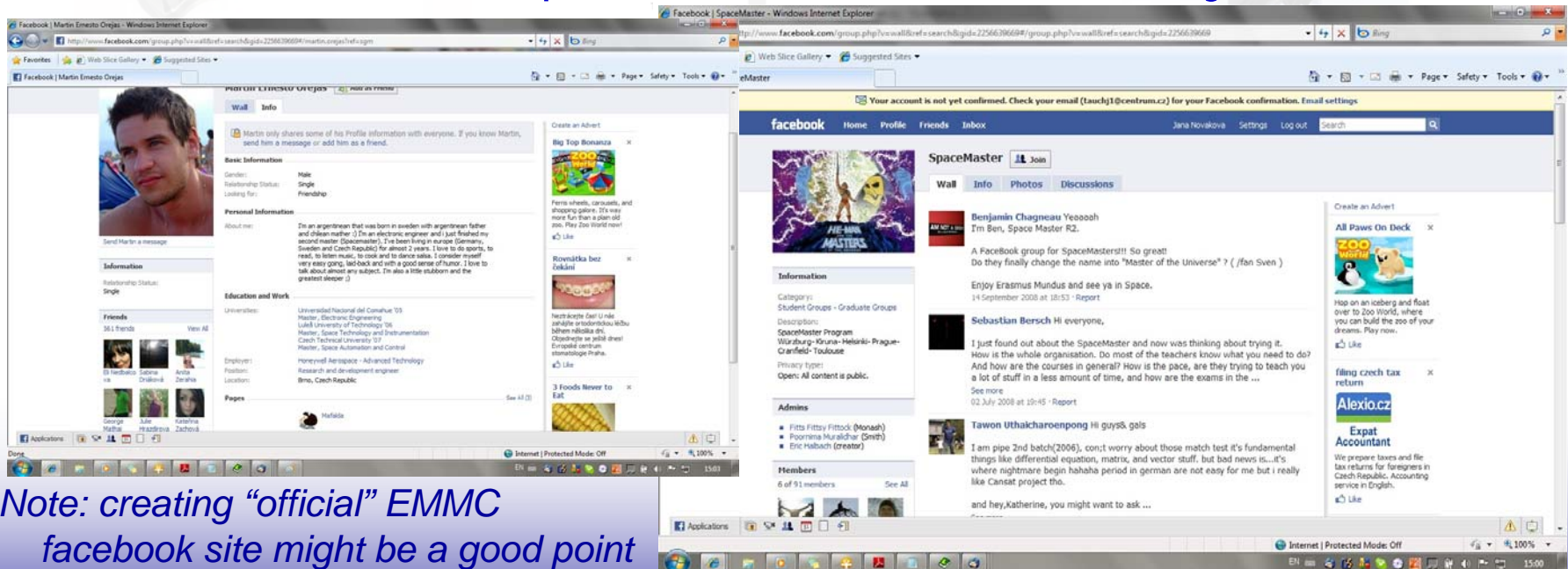
## Outline

- technical means available
- programme-level promotion
- course promotion (SpaceMaster)
- increasing attractiveness of the course
- promotion/competition within course
- technical means



## Technical means. Statistics.

- SpaceMaster related webs: [www.spacemaster.eu](http://www.spacemaster.eu), national members' pages, e.g. [www.spacemaster.cz](http://www.spacemaster.cz), Erasmus Mundus web [http://eacea.ec.europa.eu/erasmus\\_mundus/](http://eacea.ec.europa.eu/erasmus_mundus/), Facebook – spontaneous students' activity



The image shows two overlapping browser windows. The left window displays the Facebook profile of Martin Emerito Orjés, an Argentine engineer and student at Czech Technical University. The right window displays the SpaceMaster Facebook group page, which has 6 of 91 members and contains posts from Benjamin Chagneau Yeboah and Sebastian Bersch.

*Note: creating "official" EMMC facebook site might be a good point*



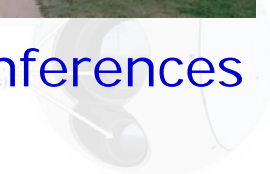
## Technical means. Statistics.

- brochures, flyers
- poster
- journals/newspapers release
  - technical journals
  - "general" newspapers and magazines – occasions like graduation ceremony, student conferences



### • How students learnt about our course

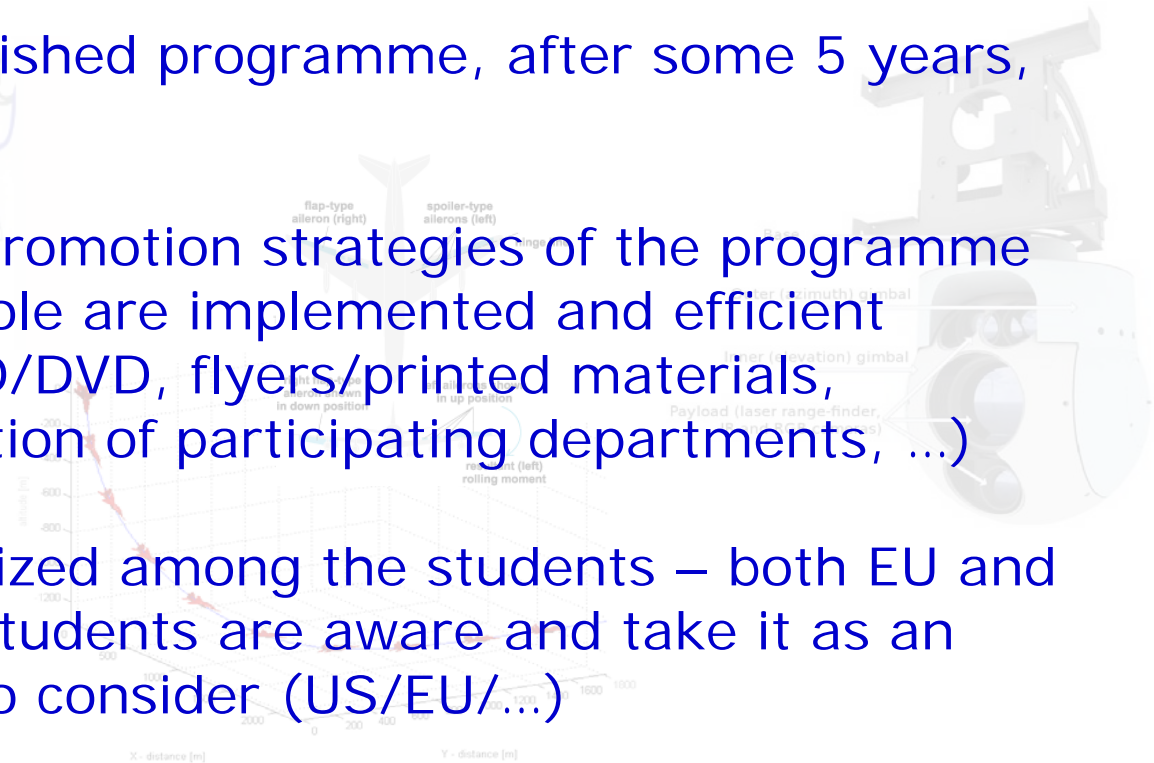
- |   |     |
|---|-----|
| - SpaceMaster website:                        | 49% |
| - web/FaceBook/forums:                        | 25% |
| - current students/graduates:                 | 13% |
| - journals and newspapers:                    | 2%  |
| - other (direct mail, physics lecturer, ...): | 11% |





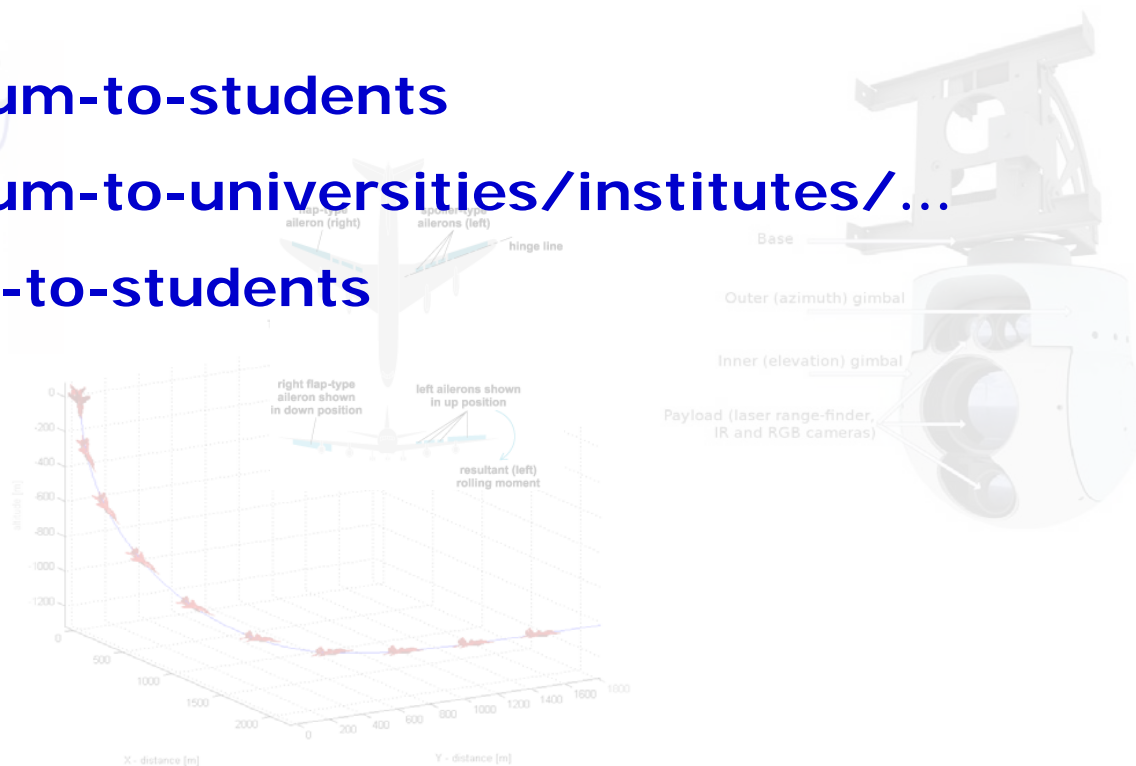
## Erasmus Mundus program promotion

- well established programme, after some 5 years, EM II, ...
- standard promotion strategies of the programme as a whole are implemented and efficient (web, CD/DVD, flyers/printed materials, designation of participating departments, ...)
- EM recognized among the students – both EU and nonEU students are aware and take it as an option to consider (US/EU/...)



## SpaceMaster promotion activities

- consortium-to-students
- consortium-to-universities/institutes/...
- students-to-students



## Consortium-to-students

- at consortium's universities (e.g. CTU), during coursework, semestral projects, ...
- students leaving for a year and then coming back home quite often 😊
- works both sides (EM enhances the dpt./fac./uni. reputation considerably)



## Consortium-to-students

- at students' affairs organized by the university (students' conferences, festives, open-doors days etc.)
- at conferences, congresses where the staff participates (IFAC World Congress)
- special "tours" round Chinese/Indian/... universities (JMUW)



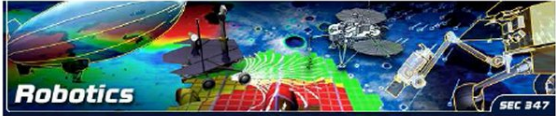


## Consortium-to-universities/institutes/...

- effective way: organizing seminars, lectures, given by respectful experts that are attracted to Europe thanks to the EM funds

**Example:** Richard Volpe, NASA/JPL robotics expert, invited to Europe by SpaceMaster, giving lecture series on extra-terrestrial mobile robotics at CTU, April 2009, for over 50 participants from the whole country –

- also potential EM students
- cooperation with/through related national-level agencies and bodies (Czech Space Office – CZ ESA node, IEEE CZ, ...)



The Department of Control Engineering, FEE CTU invites you to

Lectures on Space Robotics

**Richard Volpe, Ph.D.**  
Jet Propulsion Laboratory


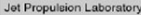


April 27 and 28, 2009, 16:00 - 18:00  
Lecture rooms 309 (Monday), 209 (Tuesday)

**Speaker information:**  
Richard Volpe is Manager of the Mobility and Robotic Systems Section of the Autonomous Systems Division. The section is a team of over 80 robotics engineers doing research and spaceflight implementation of robotic systems for Roving, Digging, Ballooning, Drilling, and other modes of in-situ planetary exploration.

Additionally, Richard is a member of JPLs Science and Technology Management Committee. From 2001 through 2004, Richard served as the manager of Mars Regional Mobility and Subsurface Access in JPLs Space Exploration Technology Program Office. In addition to guiding technology development for future robotic exploration of Mars and the Moon, he has been actively involved in 2003 & 2009 rover mission development, and 2007 lander mission operations. This has included managing internal JPL rover technology development, as well as external university research funded by the Mars Technology Program.

**Topics:**

1. Introduction with descriptions of space objectives, NASA/JPL history, space robotics history
2. Overview and details of relevant capabilities including computer vision and manipulation for space robotics.
3. Prior mission details, focusing on JPL space robotics missions (Sojourner, MER, Phoenix, MSL)
4. New technology including simulation, software architecture, airships, lunar vehicles, etc.

## Students-to-students

- graduates and alumnis as motivation for newcomers
- alumni network at [www.em-a.eu](http://www.em-a.eu) starting
- SpaceMaster alumni at [www.spacemaster.eu](http://www.spacemaster.eu)
- “success stories” – great jobs the graduates get

**Examples** of SpaceMaster/CTU graduates: Honeywell Aerospace (GPS/INS systems), Max Planck Institute (nuclear fusion), Space Research Institute of Argentina (satellites design)



Honeywell



EADS



DTU Space  
National Space Institute



## Attractive course for students: a few tips

- links to European research consortia (e.g. FP7)  
CTU/SpaceMaster: ACFA 2020 (Active Control for Flexible Aircraft), ProViScout (on-board image processing for extraterrestrial rovers)
- links to industry  
SpaceMaster: industrial partners members of the consortium as associated partners (EADS, SSC, Honeywell, Volvo)
- Action 3: EU students leaving for diploma project overseas  
SpaceMaster: SJTU, USU, U.Tokyo, U.Toronto
- clear and fair attitude to students  
SpaceMaster: agreement signed upon enrollment with the Consortium



## Promotion/competition within the course

- applies for consortia where students select among consortium's universities  
SpaceMaster: students choose among CTU, TKK, LTU, UPS, CU, JMUW for 2<sup>nd</sup> year
- challenges: uncertainty for the staff, needed policy towards students roughly equal distribution, need to compensate for "weak years"
- pros: competitive environment in the consortium, increased awareness of all consortium members among students community
- "tours" to the year-one universities

