



INDIVIDUELL STUDIEPLAN I FORSKARUTBILDNINGEN

Senast uppdaterad: 2008-07-14

DEL 1. ADMINISTRATIVA UPPGIFTER

Personuppgifter

<i>Doktorandens namn</i>	Hongyu Pei Breivold
<i>Personnummer</i>	700509-8863
<i>Institution</i>	IDE - Institutionen för Datavetenskap och Elektronik
<i>Datum då forskarutbildningen påbörjades</i>	2006-11-14
<i>Forskarutbildningsämne</i>	Datavetenskap
<i>Huvudhandledare</i>	Ivica Crnkovic, ivica.crnkovic@mdh.se
<i>Biträdande handledare</i>	Christer Norström, christer.norstrom@mdh.se Rikard Land, rikard.land@mdh.se
<i>Planeringssamtal med doktoranden har hållits</i>	2006-08-14, 2006-08-18 Discussions on be- weakly bases (Hongyu, Ivica) Discussions on be- weakly bases (Hongyu, Magnus) Discussions on be-monthly bases (Hongyu, Ivica, Magnus, Christer) 2006-09-20, 2006-10-23, 2006-11-09, 2006-12-21 (Hongyu, Ivica) 2007-01-08 (Hongyu, Ivica, Magnus) 2007-02-05, 2007-03-06, 2007-03-20, 2007-05-14, 2007-07-20, 2007-09-12, 2007-11-14(Hongyu, Ivica) 2007-12-13 (Hongyu, Ivica, Magnus, Stig, Rikard) 2008-01-24, 2008-01-28, 2008-04-28, 2008-05-23, 2008-07-11 (Hongyu, Ivica) 2008-05-06 (Hongyu, Ivica, Rikard)

Finansiering

<i>Annan typ av finansiering</i>	SAVE-IT
<i>Finansieringsplan specat per tidsperiod</i>	The funding is regulated through ABB-KKS and MhD contract in the frame of SAVE-IT research school.

Examen

<i>Licentiatexamen</i>	Ja, planerad till: vt 2009 Fodrad poäng inom kursbundna studier: 30 Fodrad poäng inom avhandlingsarbete : 50 Examensbeteckning: teknologie
<i>Doktorexamen</i>	Ja, planerad till: ht 2011 Fodrad poäng inom kursbundna studier: 50 Fodrad poäng inom avhandlingsarbete : 110 Examensbeteckning: teknologie

Aktivitet för hela forskarutbildningen

<i>Fullgjord del av examen (%)</i>	<i>Aktivitetsgrad för forskarutbildningen (%)</i>	<i>Institutionstjänstgöring eller liknande (%)</i>
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		<i>Planerad</i>	<i>Faktisk</i>		<i>Planerad</i>	<i>Faktisk</i>		<i>Planerad</i>	<i>Faktisk</i>
2006	ht	20	20	ht	75	75	ht	0	0
2007	vt	25	25	vt	75	75	vt	0	0
	ht	30	30	ht	75	75	ht	0	0
2008	vt	40	35	vt	75	50	vt	0	0
	ht	45		ht	75		ht	0	
2009	vt	50		vt	75		vt	0	
	ht	70		ht	75		ht	0	
2010	vt	80		vt	75		vt	0	
	ht	90		ht	75		ht	0	
2011	vt	95		vt	75		vt	0	
	ht	100		ht	50		ht	0	

Ingen avvikelse från planerad aktivitet

Kurser i forskarutbildningen

<i>Planerade kurser</i>	<i>Tillgodoräknade samt avklarade kurser</i>
Reading and writing summary reports of two dissertations for 2 credits: Continuous Evolution through Software Architecture Evaluation – Ph.D Thesis by Christian Del Rosso Architectural Design Decisions – Ph.D Thesis by Anton Jansen	UML,OO analysis and design with UML (3 credits) Advanced C++ programming (1 credit) COM and ActiveX (1 credit) Software architecture for industrial system (3 credits) ABB project design & analysis work (7 credits) Research methodology (5 credits) Progress-techniques and technologies (5 credits) Legacy issues in industrial software development (5 credits) Advanced CBSE (5 credits) Formal languages, automata and theory of computation (3 credits) Research Planning (3 credits)

DEL 2. PLANERING AV FORSKARUTBILDNINGEN

Plan för avhandlingsarbetet

<i>Beskrivning av forskningsuppgift och inriktning</i>
Most of the software intensive systems nowadays become more and more complex due to the constantly incoming new requirements and evolution of technologies. The ability to develop, maintain and evolve software systems to meet quality requirements has become critical. The research focus areas will from the architecture perspective include how to model the system, which methods and tools can be used and how to verify that the system still can achieve quality attributes during the evolution process. The systems that will be analysed belong to a category of complex industrial embedded systems. The work will focused on particular quality attributes related to maintainability, portability, and evolution. Model-based and component-based approaches will be utilised.
<i>Detaljerad beskrivning av planerat avhandlingsarbete det närmaste året</i>
Several courses are planned and paper/literature reading will be the main part in the first beginning. Research method course, research planning and selected topics of embedded systems development will be taken in the first semester. A well defined research subject, i.e. which quality attribute to focus on will be formed during first year.

Fullgjorda moment /avvikelser från planering och orsak till detta

Tutorial proposal with Ivica to COMPSAC on component-based engineering and service oriented engineering (submitted 2007-01-31) accepted for COMPSAC 2007 Tutorial Track and was presented 2007-07-27

A paper entitled 'Component-Based and Service-Oriented Software Engineering: Key Concepts and Principles' (submitted to Euromicro CBSE track 2007-03-23) was accepted 2007-05-03 and was presented 2007-08-29.

Paper 'Evaluating Software Evolvability' was accepted at SERPS and presented 2007-10-25

Technical report 'Using Evolvability Model for Evolvability Analysis' was finished 2008-02

Paper 'Analyzing Software Evolvability' was accepted at COMPSAC 2008 as a short paper and will be presented in July.

Paper 'Migrating Industrial Systems towards Software Product Lines: Experiences and Observations through Case Studies' was accepted at Euromicro SEAA SPPI track and will be presented in Sept.

Paper 'Analyzing Software Evolvability of an Industrial Automation Control System: A Case Study' was accepted at ICSEA 2008 and will be presented in Oct.

Paper 'Using Dependency Model to Support Software Architecture Evolution' was accepted at ERCIM Workshop on Software Evolution and Evolvability, IEEE and will be presented in Sept. 2008

Planerad utformning av avhandlingen

The research for thesis is based on literature surveys and case studies. The research problems will be derived from industrial problems. Theories and methods proposed in research will be applied on particular cases from the industry. The methods and the results will be analysed, and the methods will be refined and applied to new cases. The first part, up to the lic. Thesis theoretical studies and validation of the methods will be emphasised. Improved methods – architectural analysis and modelling will be proposed and validated. All research will be closed to industrial cases, i.e. the research is more of the applied research type, then fundamental.

Plan för handledning*Omfattning*

Continuous cooperation with the supervisors, the research group at MdH and ABB

Tillgänglighet

Continuous availability – be-weekly discussions planned

Former för handledning

Main supervisor – continuous discussions and planning
 Industrial supervisor – continuous discussions and planning
 Assistant supervisor – participation in discussions in relation to other projects
 Quarterly meetings where all supervisors and the student are participating

Forskarutbildningens innehåll*Pedagogisk utbildning och annan utbildning*

In some courses (such as research methodology) presentation of the results will be trained.

Forskningsetik

Course in Research Methodology for Computer Science and Engineering completed

Vetenskapsteori och kunskapsteori

Course in Research Methodology for Computer Science and Engineering completed

Förmåga att använda relevanta IT-verktyg

4 years of under-graduate study and 14 years of experiences as software developer in different industrial

environments.
<i>Projektledning</i> 14 years of experiences in industrial projects and courses in project management
<i>Forskningsfinansiering</i> Experience from industry (research institution)
<i>Samarbetsförmåga</i> 14 years of working experiences in medium/large industrial projects, good cooperation with others
<i>Språkfärdighet på svenska och engelska</i> Literature studies, reading and writing reports and daily practice
<i>Miljöaspekter inom utbildningen</i> According to the standards and policies of the University
<i>Kommunikation med ickespecialister</i> Cooperation with industries and other ABB companies
<i>Förmåga att arbeta interdisciplinärt</i> Course in Research Methodology for Computer Science and Engineering completed
<i>Kännedom om karriärvägar utanför högskolan</i> 14 years of industrial experiences and cooperation with industry and ABB companies.
<i>Arbetsplats och materiella resurser</i> According to the standards and policies of the University and ABB
<i>Övrigt</i>

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