TECHNISCHE UNIVERSITÄT WIEN

CERTIFICATION

The Vice Rector for Academic Affairs as the governing body responsible for study matters awarded, pursuant to § 87 (1) University Act 2002, BGBl. I Nr. 120/2002 in the applicable version, to

Mr Dipl.-Ing. Benjamin KIESL BSc

born on **18.04.1988**

Citizenship **Austria**

who demonstrated his qualification to do independent scientific research by the dissertation entitled

Structural Reasoning Methods for Satisfiability Solving and Beyond

which was completed as part of the doctoral school "Logical Methods in Computer Science",

and on **26.03.2019** finished his studies for the doctoral program in technical sciences pursuant to § 54 University Act 2002, BGBl. I Nr. 120/2002 in the applicable version in connection with the curriculum for the doctoral program, MBl. Nr. 4-2007 in the applicable version, by passing the doctoral comprehensive examination,

the academic degree of

DOKTOR DER TECHNISCHEN WISSENSCHAFTEN*)

Doctor technicae

Dr.techn.

conferred in Vienna, on 26 March 2019

By order of the Vice Rector for Academic Affairs:
The Dean for Academic Affairs

Associate Prof.Dr. Hilda TELLIOGLU

*) equivalent to "Doctor of Science"

No. 316

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TECHNISCHE UNIVERSITÄT WIEN

Diploma Supplement

This Diploma Supplement follows the model developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the supplement is to provide sufficient independent data to improve the international "transparency" and fair academic and professional recognition of qualifications (diplomas, degrees, certificates etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It should be free from any value judgements, equivalence statements or suggestions about recognition.

1. Information identifying the holder of the qualification	
1.1. Family name(s)	Kiesl
1.2. Given Name(s)	Benjamin
1.3. Date of birth (MM.DD.YYYY)	04/18/1988
1.4. Student identification number	01127227
2. Information identifying the qualification	
2.1. Name of qualification, title conferred *)	
2.2. Main field(s) of study for the qualification	Doctoral program „Logical Methods in Computer Science" (LogiCS). Area of concentration: Computer Science
2.3. Name and status of awarding institution *)	TU Wien, Austrian public University
2.4. Name and status of institution administering studies *)	TU Wien, Austrian public University; Faculty of Informatics
2.5. Language(s) of instruction / examination	Deutsch / Englisch
3. Information on the level of the qualification	
3.1. Level of qualification	ISCED Code 0 ISCED Code 1 ISCED Code 2 ISCED Code 3 ISCED Code 4 ISCED Code 5A ISCED Code 5B **ISCED Code 6 Doctoral programme in Engineering Sciences**
3.2. Official length of programme	Total length of program: 6 semesters 1. stage of study: 6 semesters
3.3. Access requirement(s)	

4. Information on the contents and results gained

4.1. Mode of study

Full-time study

4.2. Program requirements

Visit http://www.tuwien.ac.at and http://logic-cs.at/phd/ for more information

4.3. Programme details (courses, modules or units studied, individual grades obtained)

The structured and interdisciplinary curriculum of the doctoral school „Logical Methods in Computer Science" consists of the thesis, the defense, soft skills, and compulsory and elective courses. The compulsory courses include an overview and introduction to all core areas of the LogiCS program, preparing the students for the interdisciplinary work they are expected to conduct. In addition, they equip the students with the required research skills. The elective courses are tightly coupled with the research topic of the respective student.

Courses	ECTS-Credits	Grade
Dissertation: Structural Reasoning Methods for Satisfiability Solving and Beyond	162	excellent
Defense	---	excellent
Compulsory Module:		
Introduction to Logical Methods in Computer Science	3	excellent
Research and Career Planning for Doctoral Students	3	excellent
Research Seminar LogiCS	3	excellent
Elective Module:		
Decision Procedures and SMT	3	excellent
Proof Systems in Modal Logic	3	excellent
Systems and Solving Techniques for Knowledge Representation	3	excellent

International research placement (up to 6 months accumulated)	University/Research Lab	Total Duration (months)
1.	Department of Computer Science, The University of Texas at Austin, USA	4
2.	Department of Computer Science, The University of Texas at Austin, USA	2,5

Each module grade is the average of the grades of the courses in the respective modules weighted by their ECTS credits, with the grade is rounded up if the fractional part is greater than 0,5 and down otherwise.

4.4. Grading scheme and grade distribution guidance

Austrian Grading:	Assessment:
"excellent" (1)	Excellent performance (ECTS-Grade A)
"good" (2)	Generally good, some mistakes (ECTS- Grade B)
"satisfactory" (3)	Balanced, number of substantial mistakes (ECTSGrade C)
"sufficient" (4)	Performance corresponding to minimal criteria (ECTS-Grades D/E)
"insufficient" (5)	Requirement of further work (ECTS-Grades FX/F)

4.5. Overall classification of the qualification *)

passed with distinction

5. Information on the function of the qualification

5.1. Access to further study	
5.2. Professional status conferred	Access to academic professions according to professional regulations, diploma in the sense of the directive on the recognition of professional qualifications, 2005/36/EC.

6. Additional information

6.1. Additional information	Admission to this doctoral programme has been based on a competitive examination and selection of the applicants, ensuring a high level of quality.
6.2. Further information sources	www.tuwien.ac.at www.bmwf.gv.at www.oead.ac.at http://logic-cs.at/phd/

7. Certification of the supplement

7.1. Date	03/26/2019	Official stamp
7.2. Signature/name	Barbara Wiesböck	REPUBLIK ÖSTERREICH 42 TECHNISCHE UNIVERSITÄT WIEN
7.3. Capacity	By order of the Vice Rector for Academic Affairs	

8. Information on the Austrian higher education system

Post-secondary Education in Austria

- The Austrian post-secondary **university sector** (*Hochschulsektor*) consists of
  - Public universities (*Universitäten*), maintained by the state
  - Privat universities (*Privatuniversitäten*), operated by private organisations with state accreditation
  - Maintainers of university of applied sciences degree programmes (*Fachhochschulstudiengänge*) incorporated upon the basis of private or public law subsidised by the state, with state accreditation (some of wich are entitled to use the designation *Fachhochschule*)
  - University colleges of education (*Pädagogische Hochschulen*) maintained by the state or operated by private organisations with state accreditation
  - The Institute of Science and Technology Austria
  - Universities of philosophy and theology (*Philosophisch-Theologische Hochschulen*), operated by the Roman Catholic Church
- The **non-university post-secondary sector** (*außeruniversitärer postsekundärer Sektor*) consits of
  - Military academies (*Militärische Akademien*)
  - Vienna School of International Studies (*Diplomatische Akademie*)
  - Certain training institutions for psychotherapists (*Psychotherapeutische Ausbildungseinrichtungen*)
  - Conservatories (*Konservatorien*)

The following text addresses exclusively the university sector

Overall Structure of University Education

There are currently two different systems of degree programmes in Austria, an older system not based on the Bologna process an a newer one based on it

- Under the auspices of the **older system** of diploma programmes (*Diplomstudien*) the first degree awarded is the diploma degree (*Diplomgrad*). An Austrian higjher secondary school leaving certificate or it's equivalent is the general qualification necessary for enrolling in a diploma programme; conclusion of a diploma programme entitles degree holders to enrol to doctoral programmes. A diploma degree (*Diplomgrad*) is awarded by Austrian universities after a course of study consisting of 240 to 360 ECTS credits. Full degree titles are gender specific designations: (*Magister*) for men, (*Magistra*) for women. Degree titles also include a general description of the field of study in which they were obtained, e.g. (*Magister philosophiae*). In the fields of engineering the titles are (*Diplom-Ingenieur/in*). Degrees awared in medicine and dentistry are exceptions to the above. The first degree awarded after the completion of these degree programmes consisting of 360 ECTS credits are *Doctor medicinae universae* and *Doctor medicinae dentalis*, respectively.

  Graduates of university of applied sciences programmes that consist of 240 to 360 ECTS credits are awarded analogous to university studies, a university of applied sciences diploma degree (*Fachhochschul-Diplomgrad*) contingent upon discipline: either *Diplom-Ingenieur/in (FH)* for fields of engineering or *Magister/Magistra (FH)* in other fields of study.

- The **new system** is based on the distinction between undergraduate an graduate studies. Upon completion of an undergraduate programme (*Bachlorstudium* at universities, *Fachhochschul-Bachlorstudiengang* at universities od applied sciences, *Studiengang* at university colleges of education; 180 ECTS credits), a bachelor's degree (designation: "Bachelor of/in ...") is awarded. Upon completion of an graduate programme (*Masterstudiengang* at universities comprising 120 ECTS credits or, respectively, *Fachhochschul-Masterstudiengang* at universities od applied sciences comprising 60 to 120 ECTS credits), a master's degree (designation: "Master of/in ...") is awarded. In the fields of engineering the designation of the master's degree can also be "Diplom-Ingenieur/in"

Recipients of these diploma degrees from the old system or master's degree from new system (included the ones awarded in both cases by the university of applied sciences) are entitled to enrole in doctoral programmes (*Doktoratsstudium*) at universities. A doctoral degree with the designation either *"Doktor/inin"* or "Doctor of Philosophy" (PhD) is awarded upon completion of a doctoral programme with a minimum duration of three years.

In addition to the degree programmes (*ordentliche Studien*) described above, non-consecutive certificate programmes (*außerordentliche Studien*) are offered, for example in form of university programmes for further education (*Universitätslehrgänge*) or individual units/modules in scientific subjects, both at universities; certificate university of applied sciences programmes for further education (*Lehrgänge zur Weiterbildung*) at universities of applied sciences and certificate university college programmes for further education.

Diploma Programme (Diplomstudium = old system)

Admission to a diploma programme is granted on the basis of the Austrian higher secondary school leaving certificate (*Reifezeugnis*), it's foreign equivalent or the successful completion of a special university entrance qualification examination (*Studienbereichtigungsprüfung*). Students of compulsory lower schools who have completed additional schooling in the form of apprenticeships as skilled workers may take a vocationally based examination acknowledged as equivalent to the higher secondary school leaving certificate (*Berufsreifeprüfung*). Admission in diploma programmes in the arts is based on aptitude ascertained by admission examinations. Admission to university of applied sciences diploma programmes may also take place upon the basis of previous vocational or technical experience and qualifications of applicants. In some fields of study (e.g. Human Medicine and Dentistry and university of applied sciences diploma programmes) admission is based on a selective admission process.

A degree programme may be devided into stages (*Studienabschnitte*). The length of each stage of the degree programme as well as the areas of study (*Fächer*) and content required are articulated that destinguish between required subjects (*Pflichtfächer*) and electives (*Wahlfächer*). Each stage concludes with a diploma examination (*Diplomprüfung*). University of applied sciences diploma programmes and some diploma programmes at univerites include an internship or practical training. The approval of a diploma thesis (*Diplomarbeit*) is a prerequisite for admission to the concluding diploma examination.

Bachelor Programme (Bachelorstudium)

Admission to a bachelor programme is granted on the basis of the Austrian higher secondary school leaving certificate (*Reifezeugnis*), it's foreign equivalent or the successful completion of a special university entrance qualification examination (*Studienbereichtigungsprüfung*). Students of compulsory lower schools who have completed additional schooling in the form of apprenticeships as skilled workers may take a vocationally based examination acknowledged as equivalent to the higher secondary school leaving certificate (*Berufsreifeprüfung*). Admission in bachelor programmes in the arts is based on aptitude ascertained by admission examinations. Admission to university of applied sciences diploma programmes is also possible upon the basis of previous vocational or technical experience and qualifications of applicants. In some university bachelor programmes an in most university of applied sciences bachelor programmes and in study programmes of university colleges of education admission is based on a selective admission process.

Areas/modules of study (*Fächer/Module* are specified in curricula. As a rule the completion of two substantial bachelor papers or projects (*Bachelorarbeiten*) are required for awarding the degree. University of applied sciences bachelor programmes and some bachelor programmes at univerites include an internship or practical training. The programme can conclude with a bachelor examination (*Bachelorprüfung*).

Master Programme (Masterstudium)

Admission to a master programme is granted on the basis of the successful campletion of an Austrian bachelor programme (*Bachelorstudium*) or a comparable post-secondary degree acknowledged as equivalent. In some master programmes admission is based on a selective admission process.

Areas/modules of study (*Fächer/Module* are specified in curricula. A core requirementis the completion of a master thesis (*Masterarbeit*). This degree programme concludes with a master examination.The approval of the master thesis is a prerequisite for admission to this examination (*Masterprüfung*).

At university colleges of education no master programmes are offered.

Doctoral Programme (Doktoratsstudium)

Admission to a doctoral programme at a university is granted on the basis of the successful completion of an Austrian diploma or master programme or a comparable post-secondary degree acknowledged as equvivalent.

Contents and requirements of study are specified in curricula with the focus on the doctoral thesis (*Dissertation*) as a result of independent research. The degree programme concludes with the approval of the dissertation and with a comprehensive doctoral examination (*Rigorosum*) or a *defensio*.

Evaluation of performances and grading system (Austrian grading scale)

According to the modalities for examinations outlined in the curricula, achievement may be assessed by oral and written exams or project related work. In principle oral examinations are open to the public.

Austrian Grading scheme	Defintion
1	EXCELLENT
2	GOOD
3	SATISFACTORY
4	SUFFICIENT
successfully completed	Positive performance where a strict differentiation is not adequate
5	FAIL
not completed	Negative performance where a strict differentiation is not adequate

Grades for comprehensive examinations, i.e. examinations covering material from various subjects:

positive	*mit Auszeichnung bestanden* (pass with distinction) *mit Erfolg bestanden* (pass with merrit) *bestanden* (pass)
negative	*nicht bestanden* (fail)

Source:
Federal Ministry of Science and Research
Unit III/7
November 2011

* in original language (German)