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Shuai Wang

▬▬▬ Formal Education

2017 – 2022	**Vrije Universiteit Amsterdam (VU)**, *Ph.D. Artificial Intelligence*, Amsterdam, *NL*.
Funding	The NWO TOP Grant, the Netherlands Organisation for Scientific Research (NWO)
Supervisors	Prof. Frank van Harmelen and Prof. Peter Bloem
Project	MaestroGraph project
Topic	Analysis and refinement of very large knowledge graphs
Summary	I study some transitive and equivalence relations with a focus on developing scalable methods for refinement at web scale. I have obtained 54 credits (30 required) and my GPA is 8.0/10. My citation is 20 with an h-index of 3.
2015 – 2017	**Institute for Logic, Language and Computation (ILLC), University of Amsterdam (UvA)**, *MSc Logic*, Amsterdam, *NL*.
Tutor	Dr. Benno van den Berg
Thesis	Turing Learning with Nash Memory
Supervisors	Dr. Frans Oliehoek (TU Delft), Dr. Leen Torenvliet (ILLC, UvA) and Dr. Roderich Groß (U.Sheffield)
Summary	Completed the *Logic and Computation* track with 147 ECTS (120 ECTS required).
2014 – 2015	**École Normale Supérieure Cachan (now École Normale Supérieure Paris-Saclay), École Polytechnique, École Normale Supérieure Paris and Université Paris Diderot (Paris 7)**, *Master Parisien de Recherche en Informatique (incomplete)*, Paris, *FR*. Incomplete ; transferred to UvA with credits.
2012 – 2014	**The University of Manchester**, *BSc Artificial Intelligence*, Manchester, *UK*. **First class** honours degree (comparable with **cum laude**) with a high mark on the thesis.
Tutor	Prof. Uli Sattler
Supervisor	Dr. Konstantin Korovin
2011 – 2012	**University of Liverpool**, *BSc Artificial Intelligence (first year)*, Liverpool, *UK*. Ranked 4th in my year (top 5%) ; continued my bachelor's in Manchester after first year.
Tutor	Prof. Igor Potapov

▬▬▬ Professional Experience

Research Internships

Summer 2016	***Multi-agent Multi-contact Planning***	*LAAS-CNRS, The Aerospace Valley, Toulouse, FR*
Duration	4 months	
Employer	The French National Research Council (CNRS)	
Supervisor	Prof. Nicolas Mansard (the GEPETTO Humanoid Robot team)	
Summer 2015	***Reverse Engineering of Higher Order Proofs***	*Deducteam, INRIA-Rocquencourt, Paris, FR*
Duration	6 months	
Employer	The French National Institute for Research in Computer Science and Automation (INRIA)	
Supervisor	Prof. Gilles Dowek	

Research Visits

Jan 2017	A funded two-week visit to Bar-Ilan University (invited by Prof. Sarit Kraus)	*Ramat Gan, IL*
Oct 2014	A one-day research visit to RWTH Aachen	*Aachen, DE*
Oct 2014	A one-day research visit to LAAS-CNRS	*Toulouse, FR*

Research Output

Core Publications (Major Conferences)

1. Refining Identity Graphs with the Unique Name Assumption (under submission at ESWC)

2. S. Wang, J. Raad, P. Bloem, and F. van Harmelen, "Refining transitive and pseudo-transitive relations at web scale," in *European Semantic Web Conference (ESWC)*, 2021

3. S. de Bever, D. Formolo, S. Wang, and T. Bosse, "A multimodal chatbot system for enhancing social skills training for security guards," in *the 21st International Conference on Human Computer Interaction (HCI)*, 2019

4. G. Lan, L. de Vries, and S. Wang, "Evolving efficient deep neural networks for real-time object recognition," in *IEEE Symposium Series on Computational Intelligence (SSC)*, 2019

5. S. Wang and K. Hu, "Towards dynamic epistemic learning of actions in autonomic multi-agent systems," in *the 13th IEEE International Conference on Autonomic Computing (ICAC)*, 2016

6. S. Wang, "Robot ethical training with dynamic ethical preference logic," in *the 19th International Conference on Climbing and Walking Robots and Support Technologies for Mobile Machines (CLAWAR 2016)*, 2016 [Also included in the book *Advances in Cooperative Robotics* by World Scientific, ISBN : 978-981-3149-12-0]

Other Publications (Major Workshops)

7. On the Analysis of Large Integrated Knowledge Graphs for Economics, Banking, and Finance (under submission at the EcoFinKG workshop)

8. S. Wang, J. Raad, P. Bloem, and F. van Harmelen, "Submassive : Resolving subclass cycles in very large knowledge graphs," in *Workshop on Large Scale RDF Analytics (LASCAR)*, 2020

9. S. Wang, "Towards dynamic epistemic learning of actions for self-improving agents and multi-agent systems," in *the 3rd Workshop on Self-Improving System Integration (SISSY)*, 2016

Presented Papers (included in online conference proceedings)

10. S. Wang, "A quantitative analysis of kernel extension for higher order proof checking," in *ESSLLI 2016 Student Session*, 2016

11. S. Wang, "Proofcloud : A proof retrieval engine for verified proofs in higher order logic," in *12th International Workshop on User Interfaces for Theorem Provers (UITP)*, 2016

12. S. Wang, S. Tonneau, and N. Mansard, "Multi-agent multi-contact path planning with HPP," in *28th Benelux conference on Artificial Intelligence (BNAIC)*, 2016

13. S. Wang, "Reasoner-aid research : Potentials and popularity," in *28th Benelux conference on Artificial Intelligence (BNAIC)*, 2016

Abstracts, Extended Abstracts and Posters

14. S. Wang, "Higher order proof engineering : Proof collaboration, transformation, checking and retrieval," in *Conference on Artificial Intelligence and Theorem Proving (AITP)*, 2016

15. S. Wang, "Proofcloud : A proof retrieval engine for verified proofs in higher order logic," in *28th Benelux conference on Artificial Intelligence (BNAIC)*, 2016

Internship Reports

16. Multi-agent Multi-contact Path Planning, LAAS-CNRS, Toulouse, 2016

17. Reverse Engineering of Higher Order Proofs, INRIA, 2015

Theses

18 MSc thesis : Turing Learning with Nash Memory, U.Amsterdam, 2017

19 BSc thesis : Logic Based Approach for RNA Secondary Structure Prediction, U.Manchester, 2014

Tools and Platforms

1	ANN'it	*A user-friendly interface for fast annotation of triples.*
2	TuringLearner	*A platform for Turing Learning*
3	HOLALA	*A higher order reasoner based on HOL Light but with an extended kernel.*
4	HOLIDE2	*A proof translator from OpenTheory format to Dedukti format.*
5	ProofCloud	*A verified proof search engine for HOL proofs.*
6	XNA-Z3/XNA-SAT4J	*RNA secondary structure predictor using Z3/SAT4J*
7	Learn-to-plan	*A NetLogo simulation of learning while planning in Multi-agent systems.*
8	MMPP	*A multi-agent multi-contact path planning simulation using HPP.*

Published Linked Open Data

On Transitive Relations

1 SUBMASSIVE : we published the largest refined directed acyclic graph of `rdfs:subClassOf` (4.4 million triples) and `rdfs:subPropertyOf` (80K triples).

2 Weighted transitive relations graphs : 19.5 million triples of 10 common (pseudo-)transitive relations with weights.

3 A manually annotated gold standard for `skos:broader` and `rdfs:subClassOf` : 2K manually annotated triples.

On Identity Links

4 Explicit and implicit sources for entities in the identity graphs in the LOD cloud.

5 A manually annotated gold standard for 8,394 entities in 28 selected connected components from the identity graph in the LOD cloud.

6 A large weighted identity graph in the LOD cloud.

Project Experience

MSc Thesis Project

2016-2017	**Turing Learning with Nash Memory**	*UvA, NL*
Supervisors	Dr. Frans Oliehoek (TU Delft), Dr. Roderich Gross (Sheffield), Dr. Leen Torenvliet(ILLC)	
Abstract	Turing Learning is a method for the reverse engineering of agent behaviors. Nash memory is a memory mechanism for coevolution which guarantees monotonicity in convergence. This thesis explores the integration of such memory mechanism with Turing Learning for faster learning of agent behaviors. We employ the Enki robot simulation platform and learns the aggregation behavior of epuck robots.	

BSc Thesis Project

2013-2014	**RNA secondary structure prediction with SAT/SMT Solvers**	*U.Manchester, UK*
Supervisor	Dr. Konstantin Korovin	
Abstract	The project aimed at predicting RNA secondary structure using a new logic based approach taking full advantage of two state-of-the-art reasoners : Z3 and SAT4J. We encoded energy constraints and structural constraints. The solution corresponds to a prediction of the RNA secondary structure.	

Other Research Projects

Jan 2016	***Symbolic Model Checking for the μ-Calculus***	*U.Twente, NL*
Supervisor	Prof. Jaco van de Pol	
Jan 2016	**Deontic Logic Research Project**	*ILLC, UvA, NL*
Supervisor	Dr. Roberto Ciuni (ILLC & University of Padova)	

Other Projects

2016	The Mauritshuis Challenge (using IBM Bluemix APIs)	*Group project, VU, NL*

2016	KE4KE (using the FOAF Ontology, IBM Bluemix API, etc.)	*Group project, VU, NL*
2016	Action Learning in Self-improving Multi-agent System	*Group project, UvA, NL*
2015	Dynamic Epistemic Model Checking	*ILLC, UvA, NL*
2015	Dynamic Epistemic Learning of Actions	*ILLC, UvA, NL*
2013-2014	Monte Carlo algorithm for Kalah Game	*Group project, U.Manchester, UK*
2013-2014	Reinforcement Learning in Stacklberg Games	*Group project, U.Manchester, UK*

University Duties

Teaching

Winter 2021	**Deep Learning** (MSc A.I.), VU & UvA. More details at `https://dlvu.github.io/`.
Lecturers	Prof. Michael Cochez and Prof. Peter Bloem
Duties	This course covers various aspects of Deep Learning including Convolutional Neural Networks, Sequential data, Latent Variable Models, GANs and Reinforcement learning, etc. My duty as an TA was to help students with their group assignments and individual assignments.
Spring 2021	**A.I. for Health** (bilingual, MSc A.I.), Wuhan University of Science and Technology, online
Lecturers	Dr. Annette ten Teije and Prof. Judith E. Bosmans
Duties	This VU course was adapted and delivered to the master students in Wuhan as a part of the long-term collaboration with the Wuhan University of Science and Technology. I was the teaching assistant for this special bilingual course delivered at remote.
Winter 2020	**Intelligent Systems** (first year BSc Artificial Intelligence), VU, NL
Lecturer	Dr. Stefan Schlobach
Duties	I was a teaching assistant for the Intelligent Systems course, a course that was newly adapted to first year bachelor students. The course covered logical agents, Bayesian network, Machine Learning, etc. I coached two group of 42 students for their assignments and projects.
Winter 2017	**Knowledge Representation** (first year MSc Artificial Intelligence), UvA&VU, NL
Lecturer	Prof. Frank van Harmelen
Duties	I was a teaching assistant for the Knowledge Representation course. I coached in total 43 students and supervised 70+ projects. I delivered 7 tutorials and organised 8 project meetings. I audited the exam and marked 40+ project reports in 2017.
	Following the change of course format, I was involved in the marking of exams and project reports in 2018, 2019, and 2020.

Thesis Supervision

2021	Idries Nasim (BSc, VU) : Removing disambiguation entities in the identity graph.
	Second Reader : Prof. Peter Bloem.
2018	Lucas de Vries (MSc, VU-UvA) : NeuroEvolution for Real-time Object Recognition
	Co-supervised with Gongjin Lan (VU) and Jadran Sirotkovic (Accenture).
	Keywords : evolutionary training of neural networks, Raspberry Pi, neural network topology.
2018	Tico van der Laan (BSc, VU) : Using human facial expressions for interpersonal stances.
	Co-supervised with Daniel Formolo (VU) and Tibor Bosse (RU Nijmegen).
	Keywords : image analysis, face detection, emotion detection.
2018	Stein de Bever (BSc, VU) : Free speech dialogues for harmony in human relations.
	Co-supervised with Daniel Formolo (VU) and Tibor Bosse (RU Nijmegen).
	Keywords : chatbot, human-agent interaction, computer-aid workforce training.

Other Projects

2018	Expert finding in the KR&R group using chatbot.
	Web engineer : Aron van Groningen

Conference and Workshops

Conferences and Workshops (with presentation, demo or poster)

2021 European Semantics Web Conference (ESWC), online.

2020 Workshop on Large Scale RDF Analytics (LASCAR), online.

2017 Delft Robot Learning Workshop, TU Delft, Delft, NL.

2016 Benelux conference on Artificial Intelligence (BNAIC), Amsterdam, NL.

2016 International Workshop on User Interfaces for Theorem Provers (UITP, IJCAR), Coimbra, PT.

2016 Workshop on Self-Improving System Integration (SISSY), Würzburg, DE.

2016 IEEE International Conference on Autonomic Computing (ICAC), Würzburg, DE.

2016 International Conference on Climbing and Walking Robots and Support Technologies for Mobile Machines (CLAWAR 2016), London, UK.

2016 Conference on Artificial Intelligence and Theorem Proving (AITP), Obergurgl, AT.

Other Conferences and Workshops Attended

2021 EAISI Summit (Eindhoven Artificial Intelligence Systems Institute), online.

2021 International Workshop on Explainable Sentiment Mining and Emotion Detection (X-SENTIMENT), online.

2021 Second International Workshop On Knowledge Graph Construction (KGC), online.

2020 International Joint Conference on Automated Reasoning (IJCAR), online.

2020 European Semantics Web Conference (ESWC), online

2019 National eScience Symposium 2019, Amsterdam, NL.

2019 ARIAS workshop : Listening with Artificial Intelligence : Meeting of the Minds, Amsterdam, NL.

2017 Semantics 2017, Amsterdam, NL.

2017 Young Researcher Workshop on Economics and Computation (YoungEC '17), Tel Aviv, IL.

2016 International Workshop on Computational Social Choice (COMSOC), Toulouse, FR.

2016 Responsible Intelligent Systems workshop (REINS), Utretch, NL.

2015 Amsterdam Colloquium 2015, Amsterdam, NL.

2015 Hilbert's Epsilon and Tau In Logic, Informatics and Linguistics, Montpellier, FR.

2014 Vienna Summer of Logic (VSL), TU Wien, AT.

2013 British Logic Colloquium (BLC), The University of Leeds, Leeds, UK.

2013 International Symposium on Fundamentals of Computation Theory (FCT), Liverpool, UK

2013 London Mathematical Society (LMS) regional meeting, Leicester, UK.

Summer/Winter Schools

2020 SIKS Winter School : From Data Lakes to Knowledge Graphs, online.

2019 Summer School on Statistical Relational Artificial Intelligence (ACAI), Ferrara, IT.

2019 Advanced Course on Data Science & Machine Learning (ACDL), Certosa di Pontignano, IT.

2019 Nordic Probabilistic A.I. School (ProbAI), NTNU, Trondheim, NO.

2018 Summer School on Statistical Relational Artificial Intelligence (ACAI), Ferrara, IT.

2016 28th European Summer School in Logic, Language and Information (ESSLLI), IT.

2013 15th European Agent Systems Summer School (EASSS), London, UK.

2012 24th European Summer School in Logic, Language and Information (ESSLLI) Opole, PL.

Honours

Awards, Scholarships and Grants

2018 Travel grant, ACAI summer school, EurAI & the University of Ferrara, €400.

2017 NWO TOP grant (for doctoral studies), MaestroGraph project, VU Amsterdam.

2017 Travel grant (for a 2-week visit), Bar-Ilan University, €788.61.

2016	Support grant (sponsored by Google), ICAC'16, €791.60.
2016	Student grant, ESSLLI'16, €350.
2016	Student grant, COMSOC'16, €50.
2016	ILLC student travel grant ×2, ILLC, €200.
2014-2015	INRIA-MPRI Scholarship (<1%), INRIA and ENS Cachan, €12,000.
2014	Travel Grant for Vienna Summer of Logic, U.Manchester, £803.05.
2013	Student Grant for the British Logic Colloquium, ∼£110, U.Leeds.

Competitions

2021	Winner, the student writing contest *VU Pride*, Amsterdam.
2012	3rd place, Leader of the Kilburn Team, the *Barclays IT Bit Challenge*, Manchester, UK.
2013	Finalist (12 out of 124 submissions), *EUREKA Library Innovation Challenge*, Manchester, UK.

Membership

2017-present	PhD student member, BNVKI & EurAI, NL.
2013-present	Student member, British Logic Colloquium (BLC), UK.
2013-present	Associate member, London Mathematical Society (LMS), UK.
2017-2019	PhD student member, Association for Symbolic Logic (ASL), US.
2016-2017	Student member, CLAWAR Association Ltd, London, UK.
2012-2014	Student member, Royal Aeronautical Society (the Manchester Branch), UK.
2014-2015	Student member, AAAI, USA.
2012-2013	Student member, IEEE, USA.

Certificates

Certificates of Completed Online Courses

2017	Structuring Machine Learning Projects, deeplearning.ai on Coursera.
2013	Artificial Intelligence Planning, University of Edinburgh on Coursera.
2012	Game Theory, Stanford University on Coursera.

Professional Certificates

2021	Research Integrity - Engineering and Technology, Oxford University Press and Epigeum.
2021	Certificate of Advanced Academic Writing for PhD researchers, Vrije Universiteit Amsterdam.

Extracurricular Activities and Interests

Art

	I am a self-taught artist. I paint (acrylic, oil, watercolor), and draw (charcoal, pencil). I also design logos, posters, booklets and interactive websites.
Feb 2021	Exhibition : 20 Hands in 2020. This exhibition consists of 12 painting and sketches of in total 20 hands. Due to Covid restrictions, we made it an online exhibition. We received 180 visitors from all over the world in the first two days.
August 2021	Exhibition : Golden. The exhibition was at the CHAxART Gallery. It consists of 8 paintings and drawings inspired by 11 Dutch masters with a focus on the Dutch Golden Age. The exhibition also includes 5 illustrations for Andi Georgescu's poetry book *LUST*..
June 2021	Logo : I designed the logo for the Knowledge Representation & Reasoning group of the Vrije Universiteit, Amsterdam.

Student Society

2013-2014	Manchester Ultimate Programming (student society), president, Manchester, UK
	—We organised bi-weekly master classes and some hackathons.
	—I chaired the first Ultimate Programming Workshop. We invited companies like IBM, BBC, AppSense for workshops and master classes.

2012-2013	Manchester Computer Science Society (student society), marketing assistant, Manchester, UK
	— I was in the marketing team to help design posters and flyers.

Volunteering

June 2021	European Semantic Web Conference (ESWC), volunteer, online
	— I was a volunteer for the ESWC conference where I communicated with conference chairs, recorded presentations, and answered attendees' questions.
	— I was also a volunteer at the co-located knowledge graph construction workshop.
2018-2020	Fo Guang Shan Holland Temple, volunteer, Amsterdam, NL.
July 2014	Vienna Summer of Logic, volunteer, TU Wien, AT.
	— I worked as an assistant at the ACL2 and EC2 conferences at the Vienna Summer of Logic. I have also attended many talks at the LICS, IJCAR, CAV, KR, etc.
May 2013	sUAVe Aerial Photographers, Kilve Beach, UK
	— I worked as an assistant for drone and helicopter control for space exploration. We collected data for geographical research of the landscape of the Kilve beach.
2013-2014	Museum of Science and Industry, Baby Computer Volunteer (level 2), Manchester, UK.
2013-2014	Manchester Deaf Centre, volunteer, Manchester, UK.
June 2012	MerseySTEM VEX Challenge (using VEX Robot Kit) at Deyes High School, volunteer, UK.
July 2013	Deershed Festival (using LEGO Robots), Robogals, volunteer, UK.

Music and Films

eCello : I am learning electric cello with Antonis Pratsinakis (7 months).

Singing : I was a student of Caroline van Bavel for Pop and Rock (15 months). I performed *What a Wonderful World* at the Griffioen Cultural Centre in a joint concert in Jan 2020.

Directing : I was the director of Tom Clements' music video *Summer*, 2011.

Acting : I played an anonymous dancer in the Dutch film *At Midnight Plays A Dance-Tune* by Roy Serden, 2017.

Sports

Taekwondo	I obtained a red belt after five years of training.
Rowing	I was a member of the R.S.V.U. OKEANOS (rowing club).

Web Development

Personal	https://shuai.ai/
Research	https://submassive.cc/
Commercial	http://wijsjesvanweleer.nl

Multilingual Proficiency

Chinese	Native
English	Professional working proficiency (C1 & IELTS 7.0)
French	A2
Dutch	Basic (A1 and working hard towards A2)

References

Name	Contact
— Prof. Frank van Harmelen Professor Vrije Universiteit Amsterdam	— frank.van.harmelen@vu.nl
— Prof. Peter Bloem Assistant Professor Vrije Universiteit Amsterdam	— p.bloem@vu.nl