

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 Dr. Peter Bloem
Project MaestroGraph project
Topic Analysis and refinement of very large knowledge graphs
Summary I studied transitive and equivalence relations at web scale with a focus on developing scalable methods for refinement. I have obtained 48 credits (30 required) and my GPA is 8.0/10. My citation is 16 with an h-index 3. My Erdős number is 5.
- 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 With 147 ECTS (120 ECTS required), I completed the *Computation* track.
- 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 thesis project.
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, 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

Publications

Reasoning over the weighted sameAs graph with Unique Name Assumption (to come)

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

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

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

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

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

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]

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

Presented Papers (included in unpublished conference proceedings)

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

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

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

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

Abstracts, Extended Abstracts and Posters

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

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

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

Reverse Engineering of Higher Order Proofs, INRIA, 2015

Theses

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

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

Tools and Platforms

User Interface	ANN'it	<i>A friendly user interface for fast annotation of triples.</i>
Platform	TuringLearner	<i>A platform for Turing Learning</i>
Reasoner	HOLALA	<i>A higher order reasoner based on HOL Light but with an extended kernel.</i>
Translator	HOLIDE2	<i>A proof translator from OpenTheory format to Dedukti format.</i>
Search Engine	ProofCloud	<i>A verified proof search engine for HOL proofs.</i>
Software	XNA-Z3/XNA-SAT4J	<i>RNA secondary structure predictor using Z3/SAT4J</i>
Simulation	Learn-to-plan	<i>A NetLogo simulation of learning while planning in Multi-agent systems.</i>
Simulation	MMPP	<i>A multi-agent multi-contact path planning simulation using HPP.</i>

Published Linked Open Data

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

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

Gold standard for `skos:broader` and `rdfs:subClassOf` : 2K manually annotated triples.

Project Experience

MSc Thesis Project

2016-2017	Turing Learning with Nash Memory	<i>UvA, NL</i>
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	<i>U.Manchester, UK</i>
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	<i>U.Twente, NL</i>
Supervisor	Prof. Jaco van de Pol	
Jan 2016	Deontic Logic Research Project	<i>ILLC, UvA, NL</i>
Supervisor	Dr. Roberto Ciuni (ILLC & University of Padova)	

Other Projects

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

University Duties

Teaching

- Spring 2021 **A.I. for Health** (bilingual, MSc A.I.), Wuhan University of Science and Technology, online
Lecturer 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.
- 2017-2020 **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

- 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
- 2021 Logo design for the KR&R group, VU.

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 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), Utrecht, 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, 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.

Grants, Scholarships, and 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 British Logic Colloquium, ~£110, U.Leeds.

Competitions

- 2012 Leader of the Kilburn Team, 3rd place in 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.

Completed Online Courses

- 2021 Research Integrity - Engineering and Technology, Oxford University Press and Epigeum.
- 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.

Extracurricular Activities and Interests

Student Society

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

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.

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.
- July 2021 Exhibition : Golden. The exhibition was at the CHAxART Gallery. It consists of 6 paintings and drawings inspired by some Dutch master pieces with a focus on the Dutch Golden Age. The exhibition also includes 5 illustrations.
- Summer 2021 Illustration : I was invited to design 5 illustrations for Andi Georgescu's poetry book.
- June 2021 Logo : I designed the logo of the Knowledge Representation & Reasoning group of the Vrije Universiteit, Amsterdam.

Music and Films

eCello : I am learning electric cello with Antonis Pratsinakis (5 months).

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

Multilingual Proficiency

Chinese Native

English Professional Working Proficiency

French A2

Dutch Basic (A1 and working hard on it)

References

Name

Contact

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