

Bandits, Learning, and Search

Tom Vodopivec, PhD
Principal at Silicon Gardens
tom.vodopivec@silicongardens.si

University of Essex, United Kingdom
IADS Analytics, Data Science & Decision Making Summer School 2022
2022-08-01

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Topics and timeline

Monday 1st August*	Topic	Content	Content type
9:30	Introduction and business context	The advertising industry	Business
		Data science within the advertising industry	Business
	Learning and bandits	Reinforcement learning	Theory
10:30		Coffee break	
11:00	Learning and bandits	Multi-armed bandits	Theory
		Case-study: Real-time optimization of advertising content	Applied
12:30		Lunch break	
13:30	Learning and bandits	Implementing and evaluating bandit algorithms	Practical
15:00		Coffee break	
15:30	Learning and search	Reinforcement learning and Monte Carlo tree search	Theory
		The GVG-AI competition	Applied
	Wrap up	Ideas, collaboration, Q&A	Networking
17:00		Course end	

*the time slots and duration of individual topics might change

About Me

From Ljubljana, Slovenia



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About Me (Academic)

Faculty of Computer and Information Science, University of Ljubljana

Diploma thesis, 2011, Reinforcement Learning

Ph.D., 2018, Reinforcement Learning and Monte Carlo Tree Search

Applied to (video) games

Research guest at University of Essex, Professor Simon Lucas

Research guest at Maastricht University, Professor Mark Winands

Recurrent (deep) neural networks - attention mechanisms, applied to robotics and question-answering tasks

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About Me (Professional)

Researcher and teaching assistant, 6 years @ University of Ljubljana

- Autonomous mobile robotics - pathfinding, image recognition, decisioning
- Freelance software developer & data scientist

Director of business intelligence and data science, 5 years @ Celtra

- Consulting management, identifying value in data, managing R&D projects
- Built department of 10 people and defined company data strategy

Specialist for startups and venture capital, 2 years @ Reveris & Silicon Gardens

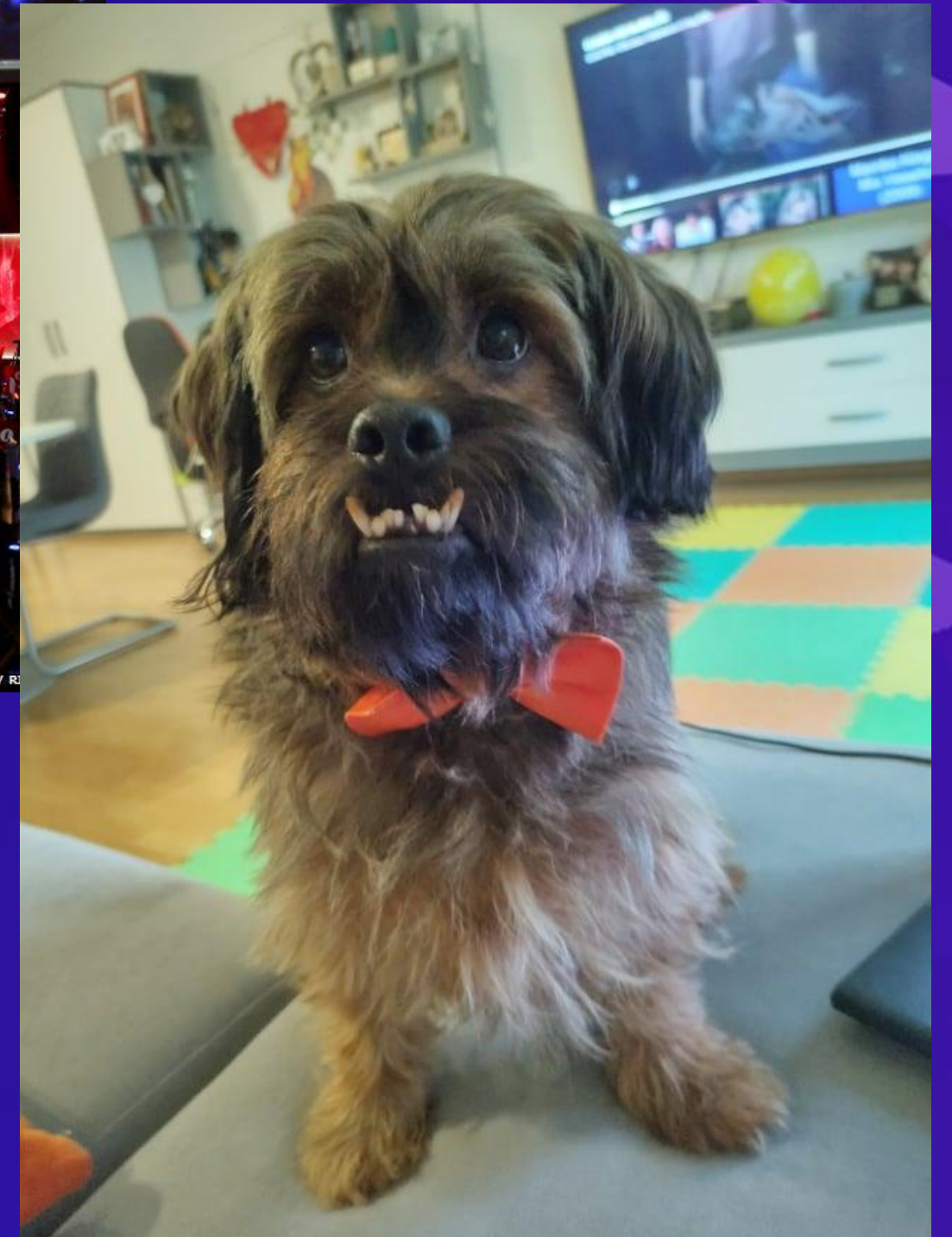
- Advising and mentoring startups to develop business and secure financing
- Investment manager, business angel

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About Me (Hobbies)

Board games
Video games
Esports

Snowboarding
Music
Walking my dog



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About You



Education?

Profession?

Experience?

Expectations?

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Bandits, Learning, and Search (in the Advertising Industry)

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Outline

1. Business context
2. Learning and bandits
3. Learning and search
4. Summary, ideas, collaboration

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1. Business Context

The Advertising Industry

Celtra

Data Insights Team

Data Engineering Team

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Outline

1. Business context
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2.Learning and Bandits

Reinforcement learning

Multi-armed bandits

Real-time optimization of advertising content

Implementing and evaluating bandit algorithms

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Outline

1. Business context
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3.Learning and Search

Monte Carlo tree search

The connection with reinforcement learning

The General Video Game AI competition

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Outline

1. Business context
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4. Summary, ideas, collaboration

Recap of topics

Potential collaboration

Open discussion

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