Simply Ask Your Data Assistant

www.veezoo.com

Marcos Monteiro
marcos@veezoo.com
Where are we losing customers?

Who is losing those clients?

Have we upsold more products in Bern this year?

Do you have the information that you need when you need it?

Hm, we need to look into that...
What if you could just ask?
Replace complicated analyst queries with easy and instant results.

**Costly:** Complex Process to Get Information.
**Inefficient:** Overloaded Backlog for Data Experts.
**Underdelivery:** Poorly-Informed Decisions.

**Fast:** Ask for the information, get it in seconds.
**Radically Easy:** Anyone can use it, increasing overall productivity.
**Intelligent:** Data-Informed Decisions to increase revenue.
Veezoo is the Best Fit for the Job

- Speaks Your Language
- Smartly Chooses Visualization
- Leverages Your Infrastructure
Why Veezoo?

**Fast**
- Answers in seconds instead of days.
- No more waiting for reports.
- No time wasted looking for the right data source or creating charts.

**Intelligent**
- Speaks fluent English and German - currently learning other languages.
- Guides you through the data, recommending questions to ask.

**Radically Easy**
- Talk or type just like a conversation.
- No training or technical knowledge needed.
- Clear visualizations with auditable results.

**Secure**
- Keep data secure on site without creating new silos.
- Use existing authorization and authentication schemes.
Make better decisions with deeper insights from structured data.

- **Sales**: to identify customer needs, discover cross-selling opportunities and monitor sales performance.
- **Marketing**: to improve customer experience, deliver more effective campaigns and identify new customer segments.
- **Finance**: to analyze data across sources and get answers in seconds for reporting using company logic.
- **Business development**: to monitor performance and identify new growth opportunities.
- **Innovation**: to drive digital transformation faster with an agile startup, optimizing company processes and strategy rollout.

Anyone can use Veezoo.
AXA Use Case: Optimizing Sales & Distribution

Status Overview

- World’s number one insurance brand serving private and corporate customers with 4,000 employees in Switzerland
- Rolling out Veezoo after a successful proof of concept
- Sales and Distribution Department users
- Various structured data sources on premise

Questions Asked to Veezoo

- What is the age of customers that cancel their contracts?
- How many new customers did we get over the online channel since March?
- For how long do the Car Insurance Policies get extended, on average?
- How much revenue did we get from our corporate customers in Bern during 2016?

“With Veezoo, we are exploring ways of making it possible for employees to access complex data in a straightforward way, and this allows us to engage intensively with the topic of machine learning on a real-life basis.” Ivo Streiff, Head Innovation Management at AXA Winterthur
SIX Use Case: Improving Financial Reporting

Status Overview

- Operating infrastructure for Swiss financial sector serving 130 banks in 25 countries
- Three successful proof of concepts delivered
- Finance and controlling department users
- Various structured data sources on premise

Questions Asked to Veezoo

- How much money did we spend with travel expenses this month?
- What was our total opex deviation for our divisions in german-speaking countries?
- How many transactions were done in Hotels in St. Moritz on rainy days compared to sunny days?

“Veezoo is a game-changer. They have shown us how their innovative technology can have a direct impact in our core business by making access to data incredibly easy for anyone.” Markus Graf, Co Founder F10 Accelerator, Head of IT Innovation, SIX
info@veezoo.com

Marcos Monteiro, CEO of Veezoo
Appendix
Reliable Partner: Proven Track Record Collaborating with Corporates

- Mar. 2015: SIX Hackathon Winner
- Jul. 2016: 1st startup in F10 Incubator
- Nov. 2016: ETH-spinoff certification
- Feb. 17: 3 successful PoCs with SIX
- Sep. 2017: Seed investment from 5 reputable ICT investors
- Jul. 2018: Startup Partnership

SIX Hackathon Winner
1st startup in F10 Incubator
ETH-spinoff certification
3 successful PoCs with SIX
Seed investment from 5 reputable ICT investors
Startup Partnership

“Veezoo has a great product with better results than the competition.”
Philipp Freise - KKR Executive, Bilanz 10/2017
Reliable Partner: Strong Team Backed by Reputable ICT Investors

Management

Marcos Monteiro  
CEO & Co-founder  
Mathematics & Statistics

Till Haug  
COO & Co-founder  
AI & NLP, Computer Science

João P. Monteiro  
CTO & Co-founder  
AI & NLP, Computer Science

Investors

Thomas Dübendorfer  
President of Swiss ICT Investor Club

Sandro Cornella  
Member of the Board  
CEO of makora

Martin Welzl  
Marketing Expert

Flavio Rump  
Co-founder of DeinDeal.ch

Richard Eisler  
Founder of Comparis.ch
Neural Multi-Step Reasoning for Question Answering on Semi-Structured Tables

Till Haug
Veezoo AG
Zurich, Switzerland
till@veezoo.com

Octavian-Eugen Ganea
ETH Zurich
Zurich, Switzerland
octavian.ganea@inf.ethz.ch

Paulina Grnarova
ETH Zurich
Zurich, Switzerland
paulina.grnarova@inf.ethz.ch

Abstract
Advances in natural language processing tasks have gained momentum in recent years due to the increasingly popular neural network methods. In this paper, we explore deep learning techniques for answering multi-step reasoning questions that operate on semi-structured tables. Challenges here arise from the level of logical compositionality expressed by questions, as well as the domain openness. Our approach is weakly supervised, trained on question-answer-table triplets without requiring intermediate strong supervision. It performs two phases: first, machine understandable logical forms (programs) are generated from natural language questions following the work of [Pasupat and Liang, 2015]. Second, paraphrases of logical forms and questions are embedded in a jointly learned vector space using word and character convolutional neural networks. A neural scoring function is further used to rank and retrieve the most probable logical form (interpretation) of a question. Our best single model achieves 34.8% accuracy on the WikiTableQuestions dataset, while the best ensemble of our models pushes the state-of-the-art score on this task to 38.7%, thus slightly surpassing both the engineered feature scoring baseline, as well as the Neural Programmer model of [Neelakantan et al., 2016].

soccer games1. This line of research is practically relevant for automated systems that support interactions between non-expert users and databases without requiring specific programming knowledge.

Question-Answering (QA) systems are often faced with a trade-off between the openness of the domain and the depth of logical compositionality hidden in questions. One example are systems able to answer complex questions about a specific topic (e.g., [Wang et al., 2015]). Unsurprisingly, these systems often struggle to generalize to other, more open domains. On the other side, topic-independent QA systems that can potentially interrogate large databases are usually limited to simple look-up operations (e.g., [Bordes et al., 2014a]).

Here, we propose a novel weakly supervised model for natural language interfaces operating on semi-structured tables. Our deep learning approach eliminates the need for expensive feature engineering in the candidate scoring phase, while being able to generalize well to never-seen before data. Each natural language question is translated into a set of computer understandable candidate representations, called logical forms, based on the work of [Pasupat and Liang, 2015]. Further, the most likely such program is selected in two steps: i) using a simple algorithm, logical forms are transformed back into paraphrases (textual representations) understandable by non-expert users, ii) next, these raw strings are further embedded together with the respective questions in a jointly learned vector space using convolutional neural networks over character and word embeddings. Multi-layer neural networks and bilinear mappings are employed as effective similarity mea-
Data privacy with high priority
Enterprise Warehouse

Analyze

Resolve Ambiguities

Execute

Improve

Ask Question

Questions Based on Answer or History

Defaults, Ambiguities, Follow-up Question, Unknown terms

Data Visualisation

Explanation of the executed Queries

Collect Feedback

Semantic Representation

Learn

Enterprise Warehouse

Repeat