

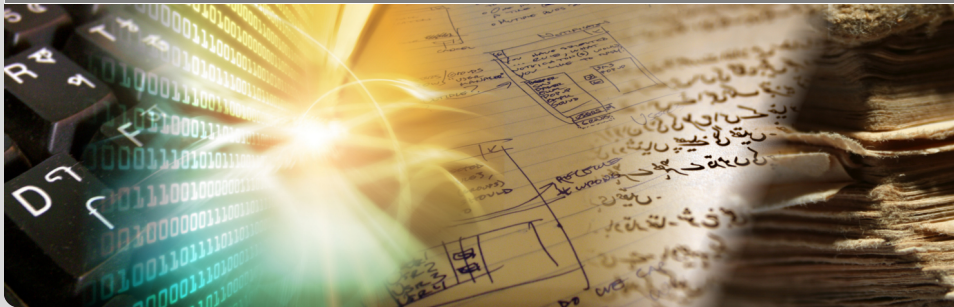
Bachelor's Thesis

Flexible User-Friendly Trip Planning Queries

Adviser: Saeed Taghizadeh

Violina Zhekova | May 7, 2019

IPD BÖHM



Outline

- 1 Motivation
- 2 Related Work
- 3 Problem Definition
- 4 Introducing the Operators
 - Equality
 - Inequality
 - Or
 - Order
- 5 Evaluating the operators
 - Equality
 - Inequality
 - Or
 - Order
- 6 Conclusion
- 7 Discussion and Future Work

- Sequenced Route Queries (SRQ) - finding routes passing through multiple Points of Interest (Pols)
- Advances in Location Based Services (LBS)
- Geographic Information System (GIS) applications (e.g. logistics and supply chain management)



- Trip Planning Queries (TPQ)
- Optimal Sequenced Route (OSR) Query
- Skylyne concept
- Considering multiple factors of a route – rating, distance and category weights
- SRQ issued by users moving along a route

Problem definition







Or









Or














Problem definition



Discussion and Future Work



-  Didier Guzzni, Adam Cheyer, Charles Baur. *Active, a platform for building intelligent software*. IEEE Web Intelligence and Intelligent Agent Technology Workshops, 2006.
-  Alexander Wachtel, Jonas Klamroth, Walter F. Tichy. *A Natural Dialog System Based on Active Ontologies*. Annalen der Physik, 322(10):891–921, 1905.
-  Steven Levy. *An exclusive inside look at how artificial intelligence and machine learning work at Apple*.
<https://www.wired.com/2016/08/an-exclusive-look-at-how-ai>
-  Informationen zum Sicherheitsinhalt von iOS 7.1.2.
<https://support.apple.com/de-de/HT203014>
-  Bernadette Johnson. *How Siri Works*.
<http://electronics.howstuffworks.com/gadgets/high-tech-ga>

-  Stasys Bielinis. *How Siri on iPhone 4S works and why it's a big deal. Apple's AI tech details in 230 pages of patent app.*
<http://www.unwiredview.com/2011/10/12/how-siri-on-iphone-4s-works>
-  Johan Schalkwyk, Doug Beeferman, Francoise Beaufays, Bill Byrne, Ciprian Chelba, Mike Cohen, Maryam Garret, Brian Strope. *Google Search by Voice: A case study.*
-  Ciprian Chelba, Dan Bikel, Maria Shugrina, Patrick Nguyen, Shankar Kumar. *Large Scale Language Modeling in Automatic Speech Recognition.*
-  Voice Search
https://www.xovi.de/wiki/Voice_Search



Matthew Lynley. *Google unveils Google Assistant, a virtual assistant that's a big upgrade to Google Now.*

<https://techcrunch.com/2016/05/18/google-unveils-google-a>



Get notifications from Google Now in Chrome

<https://chrome.googleblog.com/2014/02/get-notifications-f>



Use Google Now on tap

<https://support.google.com/websearch/answer/6304517?hl=de>



Mariella Moon. *Google Voice Search can now handle multiple languages with ease.*

<https://www.engadget.com/2014/08/15/google-voice-search-m>



Eric Ravenscraft. *Use Some Google Now Voice Commands Without an Internet Connection.*

<http://lifehacker.com/use-some-google-now-voice-commands->



Meet your Google Assistant

<https://assistant.google.com/>



Joe Belfiore. *Windows Phone 8.1 Update brings Cortana to new markets + new features.*

<https://blogs.windows.com/windowsexperience/2014/07/30/wi>



Mary Jo Foley. *Microsoft gears up for Cortana on Android preview.*

<http://www.zdnet.com/article/microsoft-gears-up-for-cortana>



Brad Sams. *Windows 10: Cortana now syncs reminders.*

<https://www.neowin.net/news/windows-10-cortana-now-syncs->



Virginia Backaitis. *Why Microsoft's Cortana is 14 for 14 Calling World Cup Matches.*

<http://www.cmswire.com/cms/big-data/why-microsofts-cortana>



Tina Sieber. *Here's how to make the most of Cortana, the Windows 10 digital assistant.*

<https://www.digitaltrends.com/computing/get-know-cortana->



Brad Sams. *Cortana Can Now Sync Notifications From Your Android Phone To Your Windows 10 PC.*

<https://www.thurrott.com/windows/windows-10/67251/cortana>







Daniel Rubino. *Hands on with 'Hey Cortana' and the Lumia 930 Denim update*

<https://www.windowscentral.com/hands-on-hey-cortana-video>



Cortana's regions and languages

<https://support.microsoft.com/en-gb/instantanswers/557b5e>

-  R. Sarikaya, P.A. Crook, A. Martin, M. Jeong, J.P. Robichaud, A. Celikyilmaz, Y.B. Kim, A. Rochette, O.Z. Khan, X. Liu, D. Boies, T. Anastasakos, Y. Feizollahi, N.Ramesh, H. Suzuki, R. Holenstein, E. Krawczyk, V. Radostev. *An overview of end-to-end language understanding and dialog management for personal digital assistants.*
-  Chris Hoffman. *15 Things You Can Do With Cortana on Windows 10.*
<https://www.howtogeek.com/225458/15-things-you-can-do-wit>
-  Tom Warren. *1The story of Cortana, Microsoft's Siri killer.*
<https://www.theverge.com/2014/4/2/5570866/cortana-windows>
-  Five Things You Didn't Know About Cortana, Microsoft's Virtual Assistant
<https://www.recode.net/2014/9/22/11631126/five-things-you>



Melissa Riofrio. *Cortana's UI now expresses 18 different emotions. Siri remains detached and aloof*

<http://www.pcworld.com/article/2881902/cortanas-ui-now-ex>



Microsoft takes aim at Alexa with Cortana Skills Kit

<https://www.engadget.com/2017/05/10/stub-microsoft-takes->



Steve Dent. *Die Digitalen Assistenten im Vergleich – Teil 2 unserer Miniserie.*

<http://www.paksafe.de/blog/die-digitalen-assistenten-im-v>







Adrianne Jeffries *Google's featured snippets are worse than fake news.*

<https://theoutline.com/post/1192/google-s-featured-snippe>



Peter Stelzel-Morawietz. *Was taugen Siri, Cortana und Google Now?*

<https://www.pcwelt.de/ratgeber/Spracherkennung-Siri-Corta>

-  Eric Enge *The Great Knowledge Box Showdown: Google Now vs. Siri vs. Cortana.*
<https://www.stonetemple.com/great-knowledge-box-showdown/>
-  Jason Parker. *Google Search vs. Siri: Voice search speed test.*
<https://www.cnet.com/news/google-search-vs-siri-voice-sea>
-  Mehdi Assefi, Guangchi Liu, Mike P. Wittie, Clemente Izurieta.
Department of Computer Science, Montana State University. *An Experimental Evaluation of Apple Siri and Google Speech Recognition.*
-  Britta O'Boyle, Chris Hall. *Siri vs Cortana: Which is the funniest assistant?*
<http://www.pocket-lint.com/news/136238-siri-vs-cortana-wh>