From Conversational Interfaces to Knowledge Synthesis & Semantic Systems

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In this talk I’ll first give an overview of TCS Research and how traditional enterprises are applying AI techniques not only for automation of tasks but also amplification of human expertise. In particular I shall then focus on our experience implementing different categories of conversational systems in TCS, some at scale, using deep learning and knowledge graphs: (i) A virtual assistant that answers FAQs via a hierarchical sequence-to-sequence deep network that handles both co-references and abstract anaphora (ii) A conversational help-desk using interactive slot-filling with a sequence-to-sequence deep network (iii) Knowledge synthesis where users both ask and provide information, and where the system answers natural language queries on a knowledge graph as well proactively asks questions from users to expand its knowledge when needed (iv) Interacting with data in natural language by first migrating data to a knowledge graph and then translating natural language queries to paths this graph. Finally, (v) the creation of knowledge schemas from scratch via natural language interaction, so as to enable the creation of systems such as (iii) and (iv) via dialog. Last but not least I’ll conclude by speculating on the future of IT systems that might include not only a conversational interface but also semantic knowledge representation as well as the integration of predictive models with data models.