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Projects on (Social) Network Analysis

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Projects

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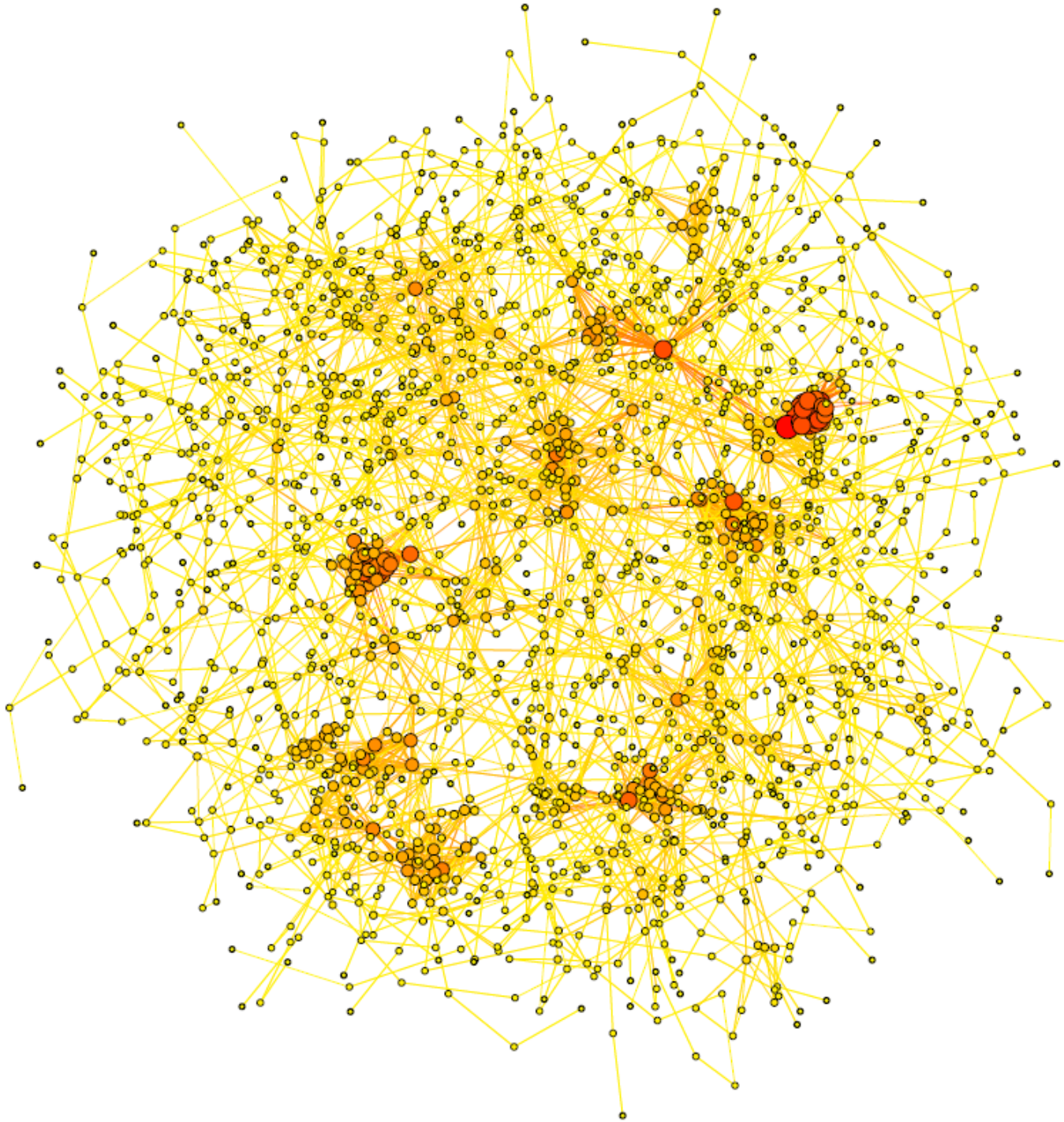
- Topics: **social network analysis** and **network science** (context: graph mining, data mining, data science, algorithms)
- Quantitative studies with concrete algorithms, (large) real-world datasets and experiments
- Project work in `C++` and/or `Python`
- Thesis in LaTeX
- Relevant courses
  1. MSc: Social Network Analysis for Computer Scientists (or: Complex Networks)
  2. BSc: Algorithms, Data Structures and Data Mining
- Interested? Contact me at `f.w.takes@liacs.leidenuniv.nl` or walk by Snellius room 157b



Project 1: Software design networks

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- Collaboration with Software Improvement Group (SIG)
- **Software design networks** modelling dependencies between components in large software systems
- Idea: assess quality of software using network science methods and algorithms
- Possibility of internship at SIG or exchange with Gothenborg, Sweden
- Disclaimer: knowledge of both software engineering and social network analysis required

Motifs

Project 2: Motif counting

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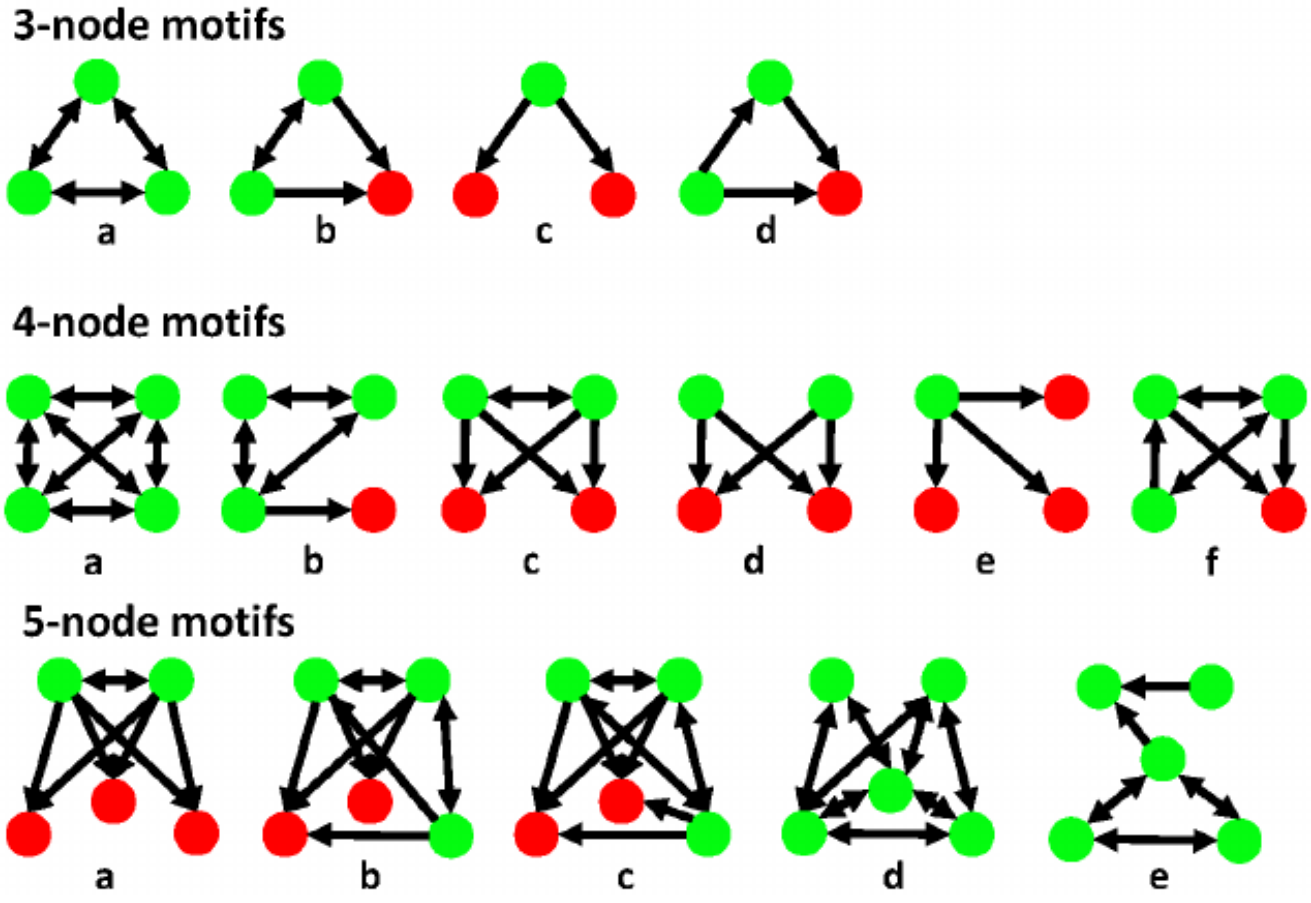
- Motifs: higher order patterns in networks, handful of nodes and edges in a particular configuration
- Building blocks of social networks
- Idea: what are the *characteristic* building blocks of certain types of networks (social, web, information, biological, economic, etc.)
- Goal: unravel the *universal building blocks* of networks

Motifs



Project 3: Peer review quality assessment

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- Collaboration with LACDR
- Peer review assessment
- Text mining
- Machine learning
- Dutch-speaking student preferred

Project 4: Reddit

Project 5: Review paper

Idea: write a literature review and depending on the scope, perform comparative experiments on the topic:

- Network centrality measures
- Network motif detection

Disclaimer: above average writing skills required.