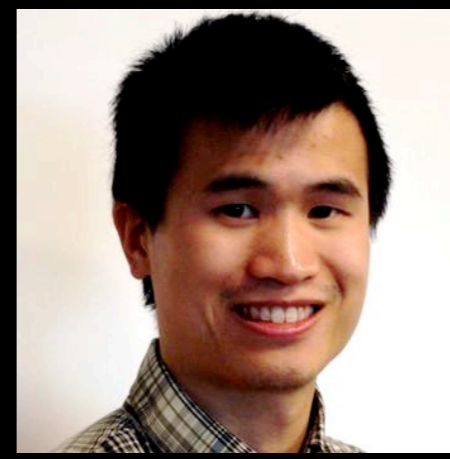Daniela Damian
danielad@cs.uvic.ca
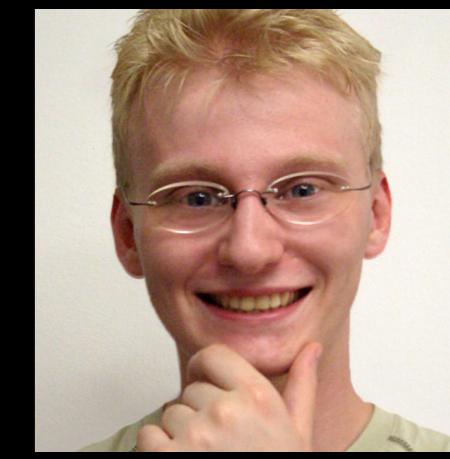
Sabrina Marczak
smarczak@cs.uvic.ca

Irwin Kwan
irwink@cs.uvic.ca

Thanh Nguyen
duythanh@uvic.ca

Adrian Schröter
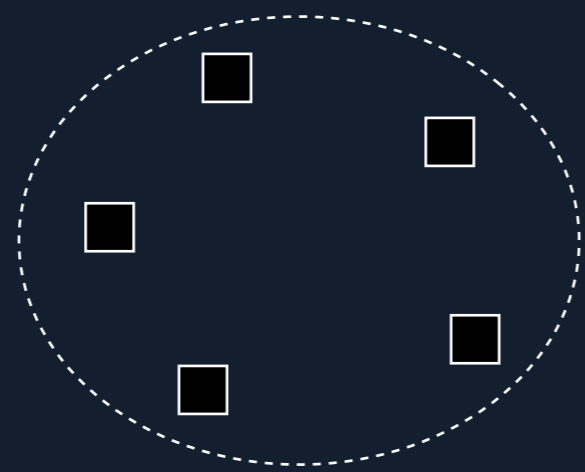schadr@uvic.ca

Jazz Research at SEGAL

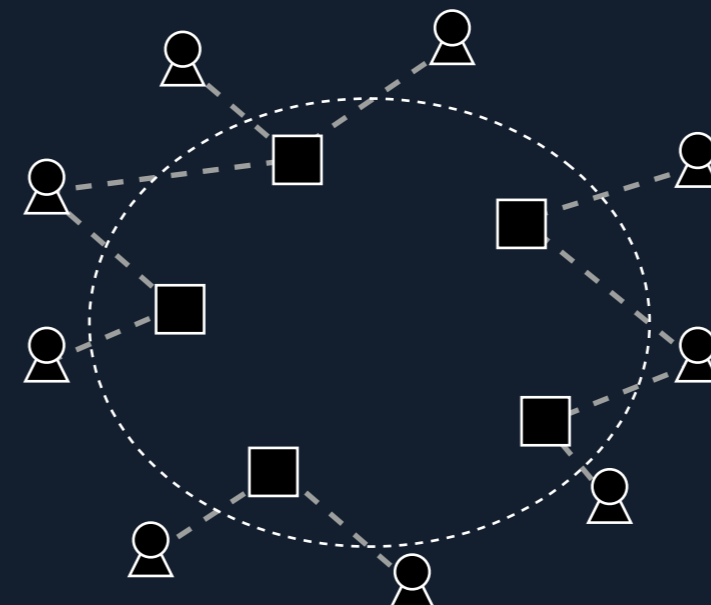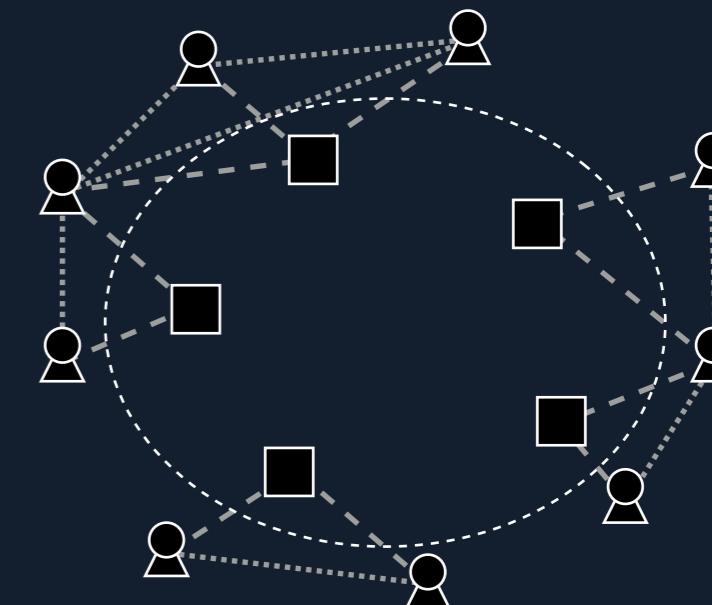## A Social Network Approach to Task-Based Communication

① Choose Research Focus

② Identify Work Artifacts Related to the Research Focus
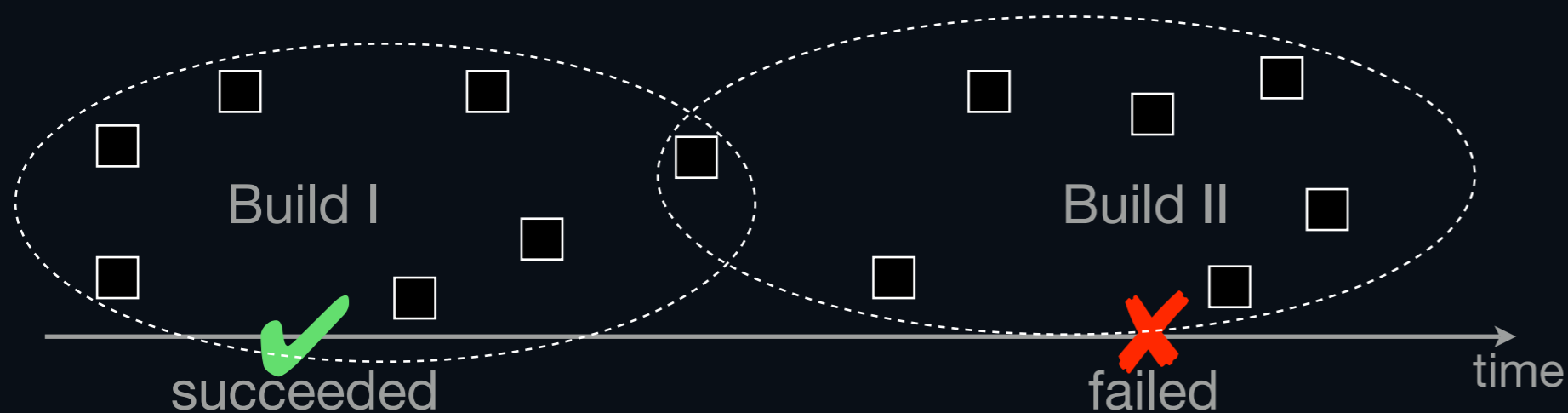
③ Identify People Discussing Work Artifacts

④ Connect People Discussing the Same Work Artifacts

T. Wolf, A. Schröter, D. Damian, L. Panjer, and T. Nguyen. Mining Task-Based Social Networks to Explore Collaboration in Software Teams. In IEEE Software Special Issue on Mining Software Repositories 2009.
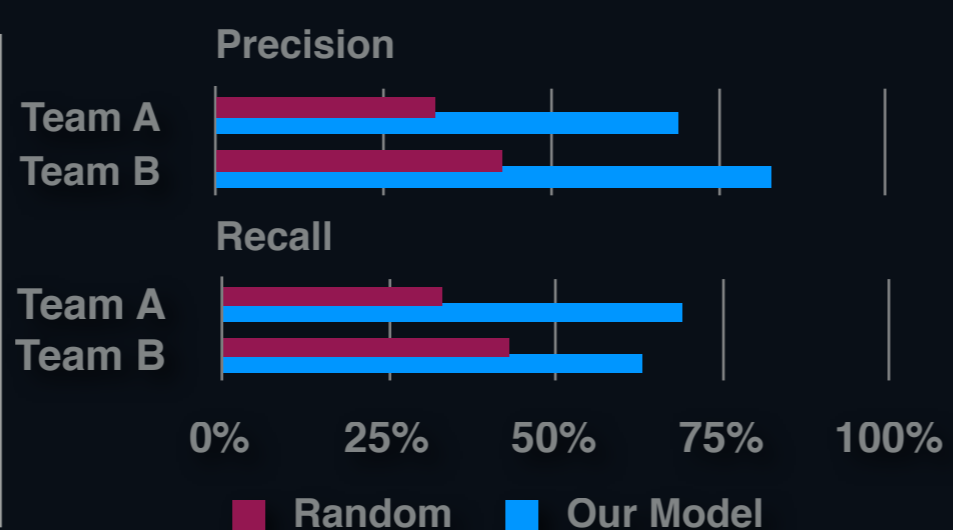
Previous projects

Build I — succeeded

Build II — failed

time

We constructed Social Networks around Builds by following the Work Items related to a build.

predict

Precision
Team A
Team B

Recall
Team A
Team B

0%   25%   50%   75%   100%

Random   Our Model
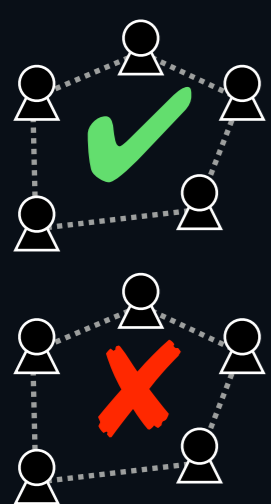
We use those social networks around builds to predict the outcome of future builds and thus show that communication influences software quality.

T. Wolf, A. Schröter, T. Nguyen, and D. Damian. Predicting Build Failures using Social Network Analysis on Developer Communication. To appear in the Proceedings of the 31st International Conference on Software Engineering (ICSE'09)

Analyzing Communication

team

developer

a core of cross-team communicators
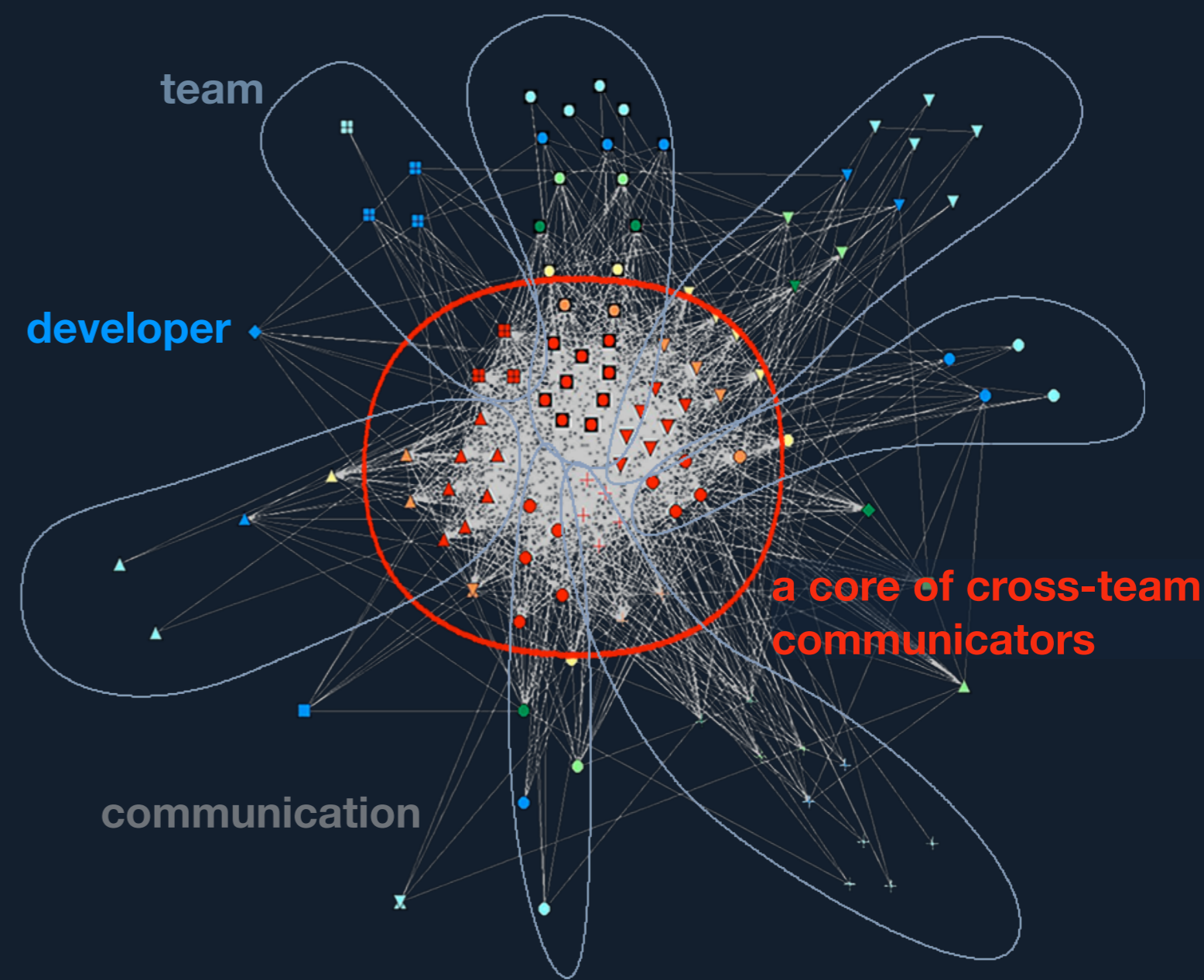
communication

The Jazz development team exhibits a project-wide communication structure with a core of developers (red circle) which seems to effectively mediate geographically distributed collaboration.
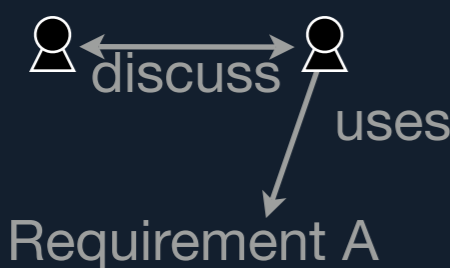
T. Wolf, T. Nguyen, and D. Damian. Does distance still matter?. In the Journal of Software Process: Improvement and Practice 2008

T. Nguyen, T. Wolf, and D. Damian. Global software development and delay: Does distance still matter?. In Proceedings of the 3rd International Conference on Global Software Engineering (ICGSE'08). IEEE Computer Society, August 2008
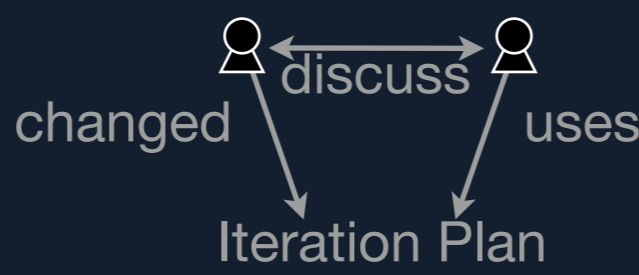
Current projects   Recommending Actions to Prevent Failures
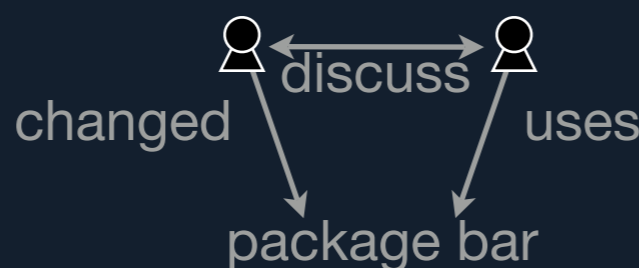
Should they discuss that change?
changed   uses
foo.bar(int x)

Should they make this change?
discuss
changed   uses
Requirement A

Should they discuss this change more?
changed   discuss   uses
Iteration Plan

Should they make additional changes?
changed   discuss   uses
package bar

Should he seek advise?
changed
class foo

Should he use his method?
owns   discuss
method A
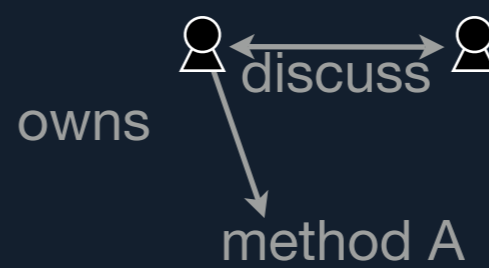
Should he get more advise?
changed   discuss
Test Plan
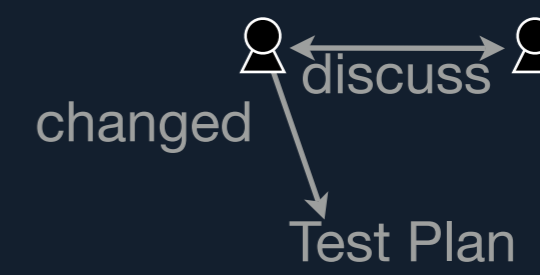
Should he use more of his methods?
owns   discuss   uses
int foo()

A. Schröter, I. Kwan, L. Panjer, and D. Damian. Chat to Succeed. In Proceedings of the 1st International Workshop on Recommendation Systems for Software Engineering (RSSE'08) collocated with the 16th International Symposium on Foundations of Software Engineering 2008.

Jazz Innovation Award '08

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Software Engineering Global interAction Labs

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