Growing the PyG Community
To Learn and Build Together

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PyG Community At A Glance

Leading Graph Network Library for BOTH industry and research

- 2.8k+ Forks
- 15.6k Github stars
- 43k clones, 100k monthly downloads
- 1600 research papers using PyG
- 6k contributions per month
- 300+ active contributors

- 80+ GNN architectures
- 200+ benchmark datasets
- Extendable via a message passing interface
- Support for new techniques
- Scalable and easy to use

“GNNs provide a natural extension to consider our network's topology, and heterogeneous learning allows me to model complex and dynamic systems. I chose PyG for my application because of its ease of use, community, and features.”

-Airbus Data Science Team
Common Use Cases of PyG Today

- **Financial Transactions**
  - Build a graph to understand financial entities and their interactions
  - Fraud and risk detection using anomaly/oulier detection
  - Validate smart contracts on existing blockchain

- **Security**
  - Identify compromised systems & network intrusion

- **Personalization and Recommendation**
  - Recommend content or items to a user
  - Predict next best purchase for a given user

- **Know-your-customer**
  - Customer loyalty and retention, predict churn and LTV

- **Manufacturing & predictive maintenance**

- **Biology**
  - Build knowledge graph to model cellular and molecular systems, discover new drugs and treatments, identify side effects, understand pathways
Trusted By Leading Enterprises and Institutions
Established and Growing Ecosystem

Libraries provide better performance/scale, application-specific models, and new structures to tackle solving problems with graphs.

[Images of various graph libraries and projects]
How Can I Plug into Community Today?

- **Slack Channel** ([Join here](#))
  - Q&A forum for any topic, meet with / learn from / collaborate with other experienced members
  - All announcements for new features, events, round-tables, and community-wide events
  - Start with `getting-started`, review docs, intro yourself in `introductions`, find topics in the roadmap channels:
    - `#scalability` corresponds to our new feature and graph store roadmaps
    - `#explainability` corresponds to our explainability roadmap
  - All features and roadmaps correspond to dedicated slack channels - collaboration hubs
  - New features and applications - can start a new channel
What is it?

- Monthly showcase - what’s new in the roadmap, latest functionality incorporated into PyG, successful case studies using graphs, video tutorials and more
- Opportunity to see a live demo of what PyG Core team is working on
- Spotlight sessions for new contributors
  - Contact us on PyG Slack to present your work (@Ivaylo Bahtchevanov)
- Examples of things you’ll see soon:
  - How a Leading Manufacturing Company Detects Security Threats and Prevents Risk
  - How a BioTech Company Discovered a New Drug By Modeling Protein Activation
  - How to Use Message Passing Effectively
  - How to Build Your Own Feature/Graph Store Implementation
- First Town Hall: Thursday October 20
Coming Soon: Weekly Blog

• What is it?
  ● Weekly Newsletter - blog posts from the core team building PyG exposing you to the latest functionality
  ● Tutorials and guides for using new features
  ● To subscribe: see announcements channel in PyG
  ● To contribute: contact PyG team on Slack (@ivaylo Bahtchevanov)

• Articles coming soon:
  ● How to take advantage of message aggregations
  ● How to use explainability in PyG
What is it?
- Engineering-led sprints organized by the PyG team open to everyone
- Collaborate with the core team and other contributors to build a feature together
- Community sprints will be announced in the slack channel #community-sprints

How do they work?
- Kick-off meeting (feature overview + Q&A)
- 2 week sprint
- Delivery meeting - demo, Q&A, overview
- Kick-off the next one
- First Community Sprint: Wednesday October 12th
Showcase Your Results

See how your model compares on a given task with standardized data for a given problem

• Compare against industry benchmarks and leaderboard
• Data loader will handle downloading and preprocessing data, with standardized model evaluators, and leaderboards to track state-of-the-art results
• To get started - https://ogb.stanford.edu/docs/home/
• See data challenges hosted by the PyG team in the #challenges channel
• Post results on #results channel
• First Data Challenge will be released: October 10th

Open Graph Benchmark

Benchmark datasets, data loaders and evaluators for graph machine learning
Build New Explainability Methods

A systematic evaluation framework for explainability methods on Graph Neural Networks

• Library to compare top explainability methods
• Comprehensive set of multi-dimensional evaluation metrics (research paper)
• Use the latest research in explainability out of the box
• Build your own explainability-methods - see readme to get started, add to leaderboard here
Latest public roadmap available for tracking major features

See our “Looking for Community Support” column for the top features we want your help on!

Contribute by adding requested features to our roadmap under the “Feature Requests” Column (reserved for new functionality)

Review and close existing “Issues” in Github - we have a lot!
Key Roadmap Themes

- **Scalability**
  - feature/graph store abstractions, distributed training
- **Performance**
  - CPU and GPU optimized training, inference, and sampling
- **Deployment and Installation**
  - containerized PyG - ready-to-go
- **Models and Algorithms**
  - new approaches and implementations
- **Integrations**
  - supported backends, data types, and formats
- **Explainability**
  - unified API and framework for calling functions, counterfactual explanation, class-wi, causality
Thank you!

Reach out if you want to get involved or collaborate!