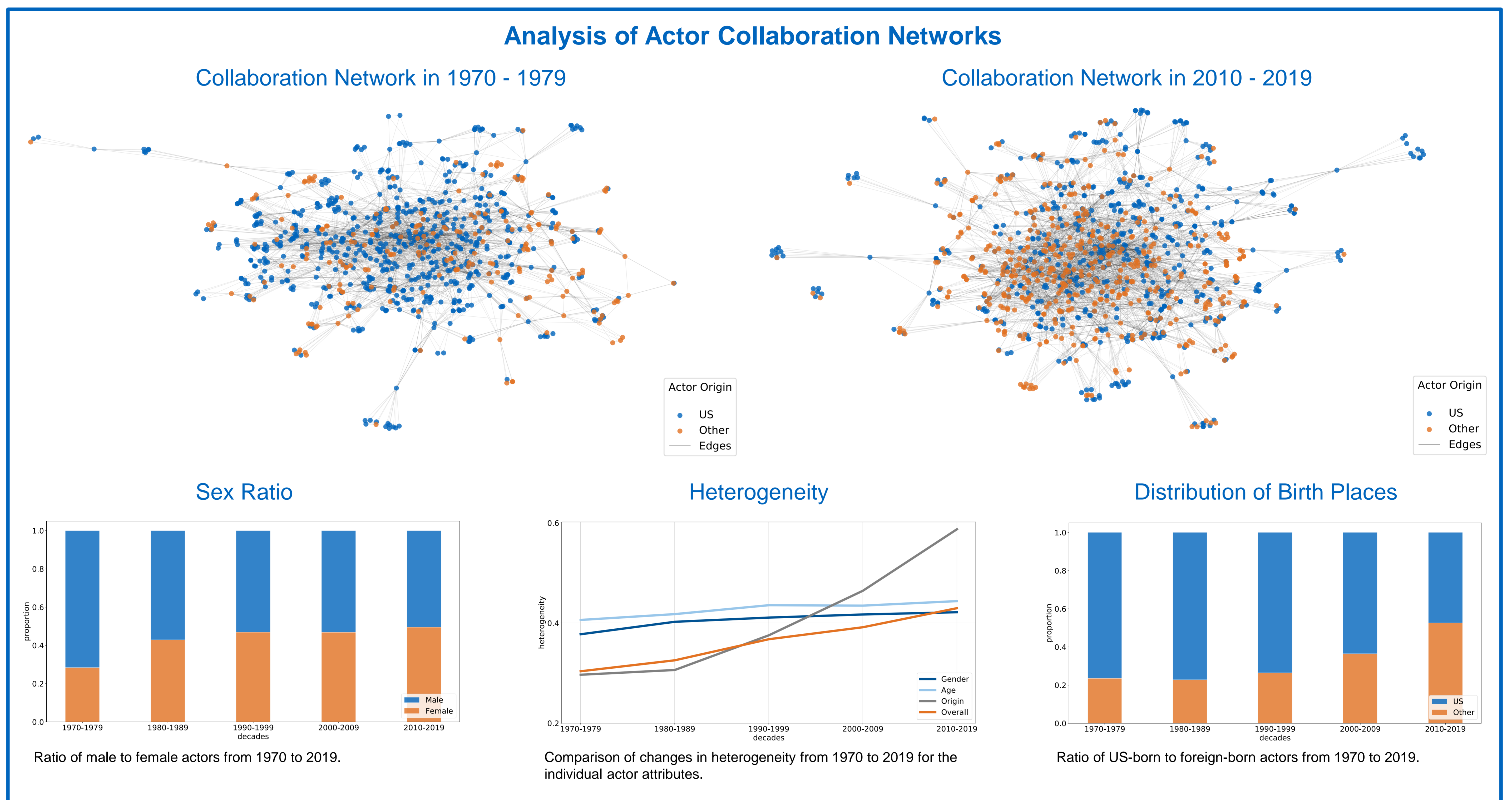


# Evolution of Heterogeneity as an Indicator of Diversity in the US Movie Industry

Mario Anderhub, Torsten Müller, David Sieffert



### Introduction

**Motivation**

- Movies are a cultural and historic artifact
- Movies influence society and social discourse
- Current societal trend towards more diversity

**Research question**

How did heterogeneity as an indicator of diversity among influential actors in the US movie industry change?

### Results

**Analysis of the Data**

- Overall heterogeneity in the collaboration network increased over time
- Number of foreign actors and origin heterogeneity increased significantly
- Modest growth of gender heterogeneity, despite a strong rise in share of women actors

### Conclusion and Outlook

**Conclusion**

- The results of this research indicate that the societal trend towards more diversity can also be observed in the collaboration of actors

**Outlook**

- The constant rise of heterogeneity among all the examined actor attributes suggest that the trend towards diversity will continue

**Answer to the Research Question**

The collaboration network of influential actors has become more heterogeneous, which suggests a increase of diversity.

### Data and Methods

**Data Sources**

- The Movie Database (TMDb): actors and movies
- OpenStreetMap (OSM): standardize actor birth place

**Original Dataset**

- **Movies:** 473.687, **Actors:** 772.577

**Data-Subset for Collaboration Network**

- **Movies:** top 20 movies per year by revenue produced in the US
- **Actors:** top 10 cast members per movie by credit order

**Graph Analysis**

- Python: NetworkX
- Collaboration Network
- Projection of the actor-movie-network onto the actor node set

**Heterogeneity Measure**

- Comparison of attributes between two neighbors (collaborators)
- Boolean distance between neighbors for each attribute
- Average distance between actors for entire collaboration network