# Estonia's Victims of Communism 1940–1991

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*Abstract*—In 2018, the city of Tallinn established a memorial to commemorate the Estonian victims of communist terror between 1940 and 1991. Among the physical artworks created as part of this memorial is a large black stone wall with 20,000 silver bees attached to it. Based on a national Estonian poem, they are displayed sticking together in spite of hostile surroundings representing the strong spirit of the Estonian people. Along the physical landmark, a digital database was made publicly available preserving the records of the victims honored by the memorial including their names and some personal data. The goal of this project will be to recreate the above artwork using methods of information visualization and to make it interactive using the data stored in the memorial's database.

## I. MOTIVATION

During a recent trip to the city of Tallinn, Estonia, I visited the memorial entitled "Estonia's Victims of Communism 1940-1991" (see https://www.memoriaal.ee/en/). It is a powerful landmark just outside the city center which disrupts the otherwise beautiful landscape it is built into. Two tall black walls lead from the waterfront countryside towards a park and military cemetery where many Estonian soldiers are buried. As part of this memorial, a section of park called the "Home Garden" was created which features a ceremonial square with a large-scale artwork of silver honeybees sitting on a black wall adapted from an Estonian poem (see Fig. 1). The poem titled "Ta lendab mesipuu poole" [He Flies towards the Beehive] by Juhan Liiv (see below) is a piece of culture essential to Estonian national identity and its lyrics put to music are often sung at national song festivals to celebrate Estonia and to mourn those who have fallen to achieve its independence:

He flies from flower to flower
and flies toward the beehive;
and the lightning clouds are rising –
Yet he flies toward the beehive.

And thousands go down;
thousands are coming home
and will endure hard work and care
and fly to the beehive!

Soul, oh soul, oh when the times are hard –
How you desire to be in your fatherland;
whether you're home or in a foreign land –
you want to be in your fatherland!

And death's wind might be blowing against you
and a bullet of death might be coming towards you:
you forget about death and care

and hurry to your fatherland!

Soul, oh soul, oh when the times are hard –
How you desire to be in your fatherland;
whether you're home or in a foreign land –
you want to be in your fatherland.

Juhan Liiv (Translation: Matis Rüütel)

The artwork in the Home Garden serves as a powerful reminder of the terrors of political conflict, bringing together themes of death, loss and sorrow with hope and beauty. Relating the artwork to the United Nations Sustainable Development Goals (UN SDGs), it primarily contributes to Goal 16 "Peace, Justice and Strong Institutions" as it promotes peace through commemoration of the victims of political violence.



Fig. 1. An image of the honeybees artwork at the Home Garden of the memorial on a national holiday in Estonia. The lyrics from the first verse of Liiv's poem are on top of the artwork in large silver letters.

## II. APPROACH

My goal for this visualization project would be to recreate the visual aesthetic of the artwork in a digital format and supplementing it with information from the memorial's database to create an interactive digital homage to the artwork. The memorial's online database contains, among other things, information about the victims' names, year of birth, year of death and related entries in the database. Specifically, I aim to create a graph or network visualization using JavaScript (e.g. D3) or Python (e.g. pyvis) for some of these data points. Each node will represent one of the victims in the data set with each link representing a connection between the entries. The primary link will be that of family relations (represented in the data set as related IDs). This will result in nodes for related victims being located closer to another in the visualisation. A secondary link based on year of death or age at the time of

death will be used to connect otherwise unrelated nodes and to represent the common fate that these victims shared tying back to the purpose of the original artwork. It could further be considered whether a dimension such as missing data (e.g. regarding time of death) could enhance the visualization, for example by animating those nodes using a small random path or oscillation–adding to the bee metaphor–where some information is still unknown. This could add some movement and unrest to the visualization which would further emphasize the unfinished nature of research into Estonian history and the history of these victims in particular.

## III. EXPECTED RESULTS

The resulting visualization should be an interactive network plot recreating the visual aesthetic of the physical memorial but supplementing it with information from the memorial database. Each node of the plot should, in reference to the original artwork, invoke the image of a silver bee (either via a graphic or just via color and general shape). The links should represent family relations and, for example, year of death for each victim, giving a strong intuition for the shared fate of the victims of communist terror and the impact it had on Estonian national identity (see Fig. 2). The data points should further be interactive, perhaps even animated, supporting the general beehive metaphor. On click or hover, each point should reveal its underlying data from the database including the victim's name and year of death. This should bring an additional layer of personal touch to the visualization and add to the overall theme of sorrow.

Additionally, it could be considered whether the lyrics of the national poem should be integrated similarly as they have been integrated into the original artwork.
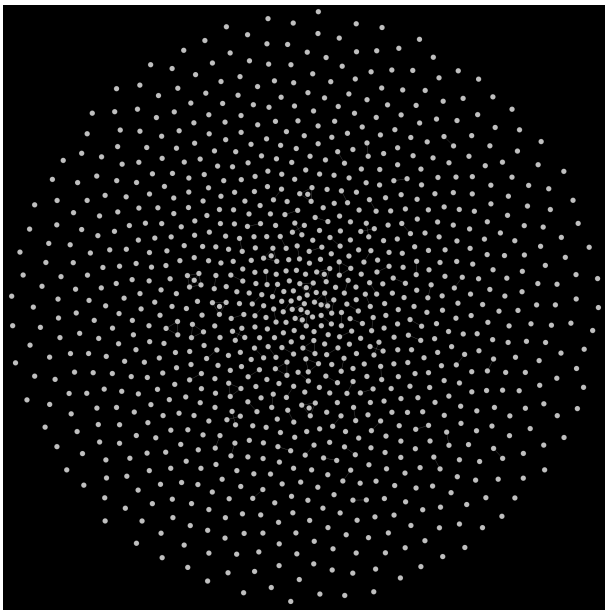


Fig. 2. A pre-visualization of the originally expected results. Each point in the scatter plot represents a victim from the memorial's database.

Originally, a scatter plot was considered that would show the year of birth and year of death for each victim, but since the

goal of the visualization centers around a sense of community (see Fig. 3), a network graph was deemed more appropriate.
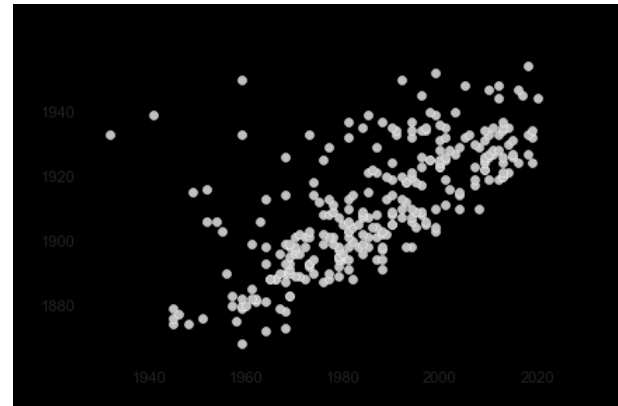


Fig. 3. A pre-visualization of the originally expected results. Each point in the scatter plot represents a victim from the memorial's database.