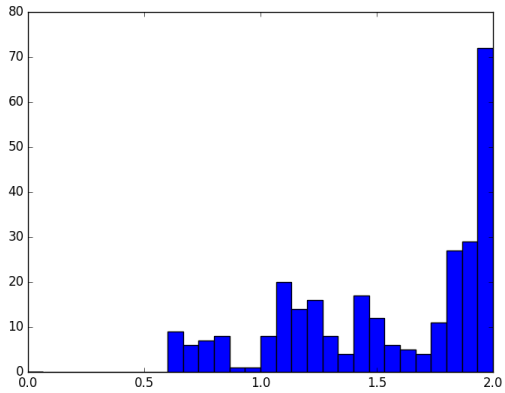
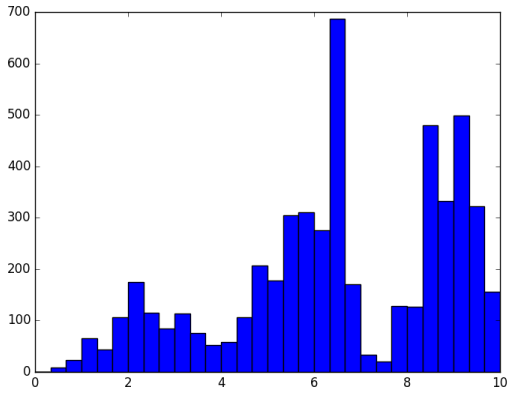
busybus coding competition

Evaluation

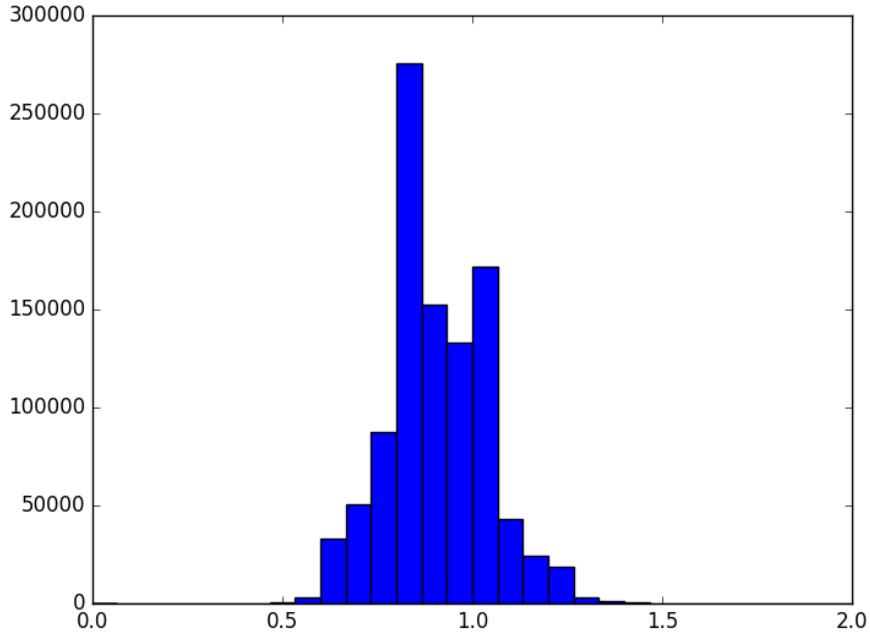
These are the results of the "busybus" coding competition http://bit.do/busybus.
The submissions and the evaluation code are on https://github.com/busybus/2017.
We thank everyone for their participation!
Recall that the goal is to sustain a low number of people waiting per station. We call this number **pps**.
The following histograms show the absolute frequencies of the **pps** over $I = 10^6$ iterations for bus capacity $C = 10$ and $N = 20$ stations. The same realization of the random "world", i.e. the sequence of passenger arrivals and their destinations, were given to all navigation strategies.
For example, the original "greedy" strategy produces the following results. Note that not all data is visible because the pps goes over 10. We show the pps histograms for each strategy in the range $[0, 2]$ and in the range $[0, 10]$, in the order of increasing temporal average (average over the I iterations, denoted by $\mathbb{E}[\text{pps}]$, aka the **score**).

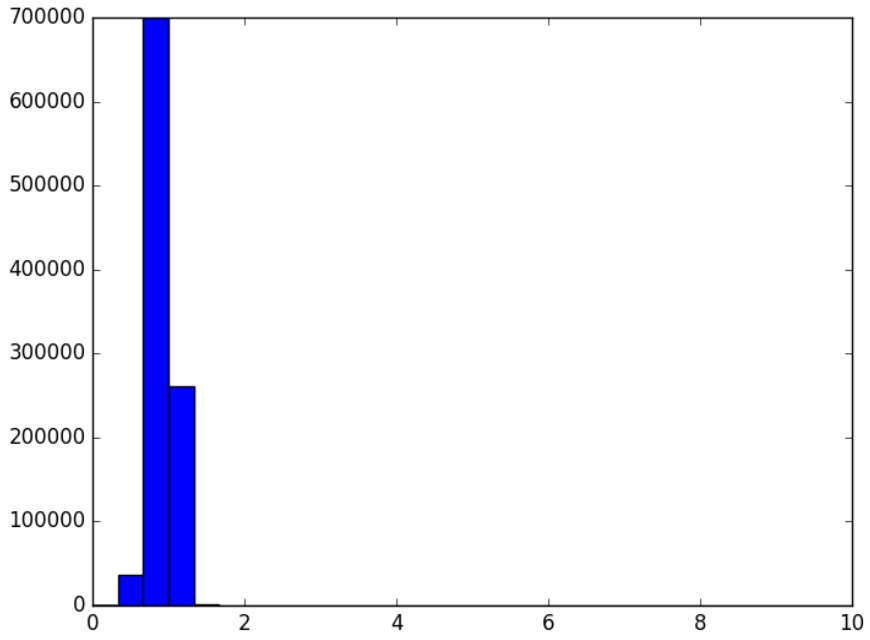




x-axis: number of people waiting per station.
y-axis: absolute frequency over $I = 10^6$ iterations.

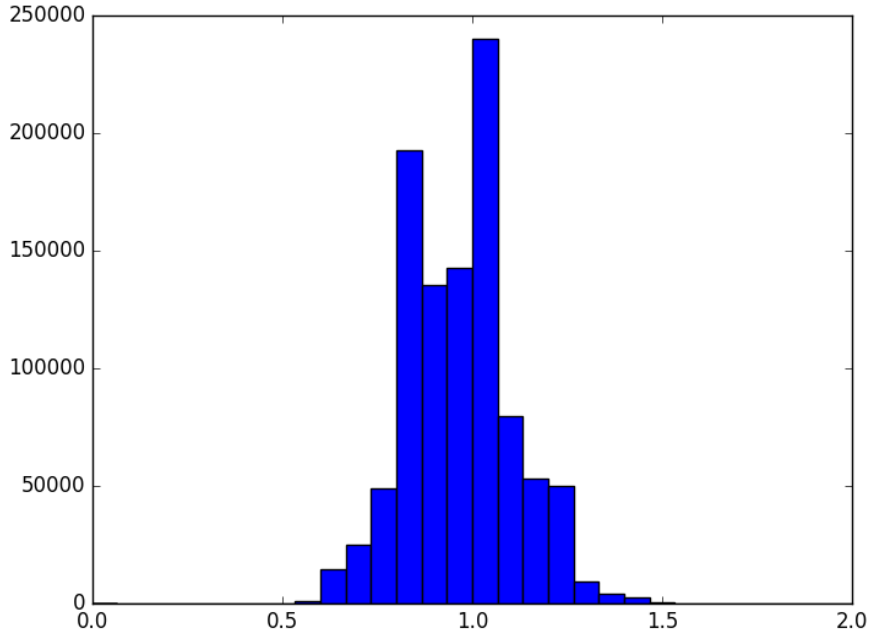
1. “Rui’s AI” by team #2 (R. Viana)

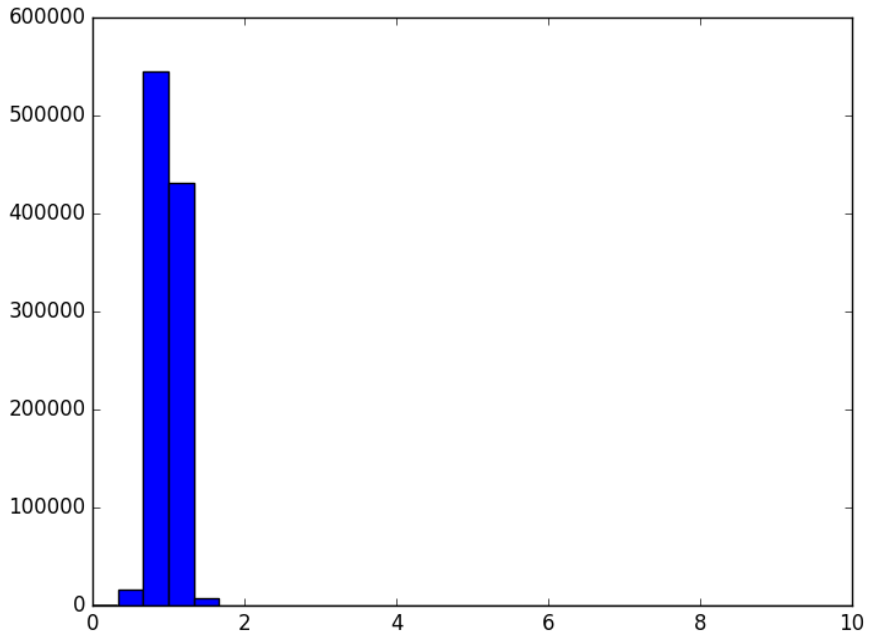




$\mathbb{E}[\text{pps}] = 0.8966639$

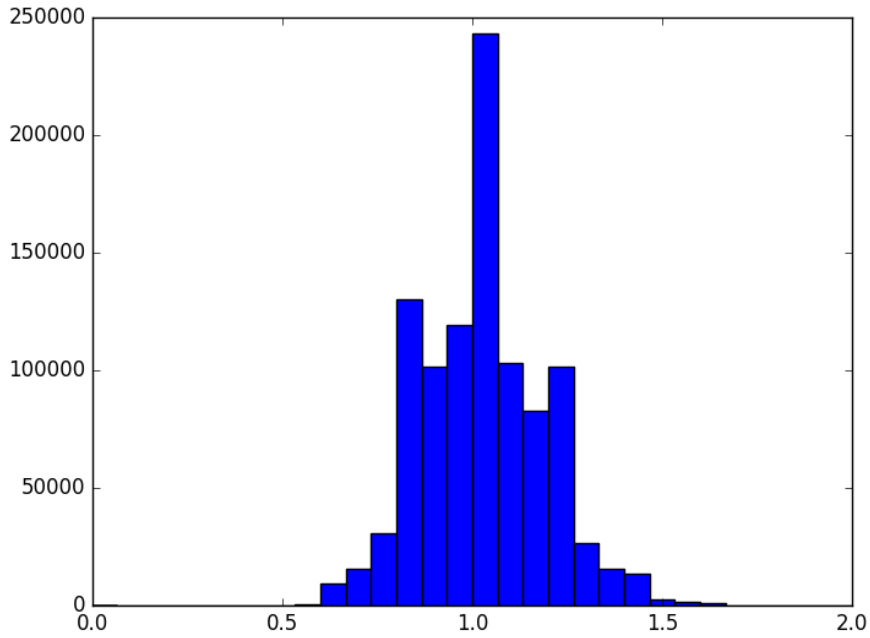
2. “smart turner 15 3” by team #10 (J. Särnbratt and O. Düsterdieck)

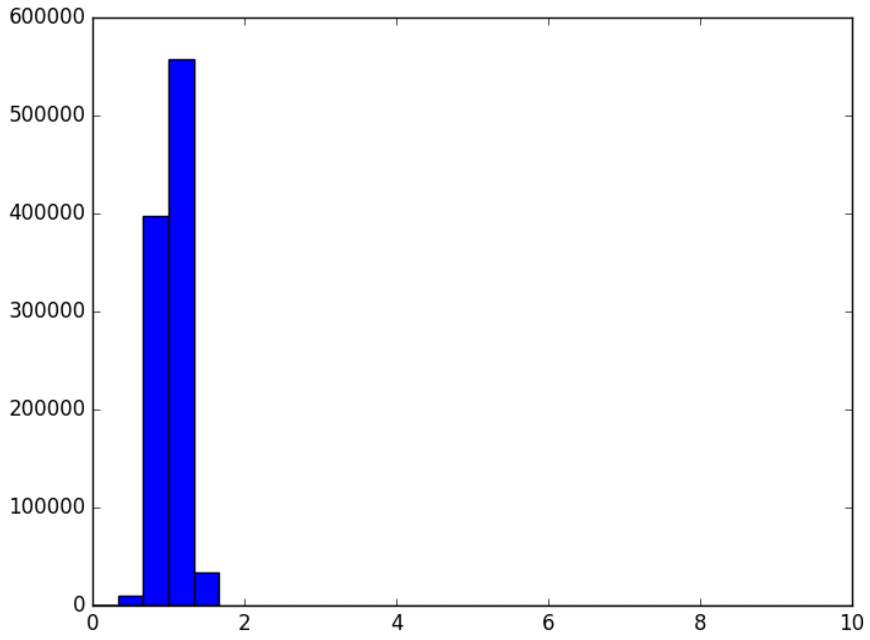




$\mathbb{E}[\text{pps}] = 0.95862085$

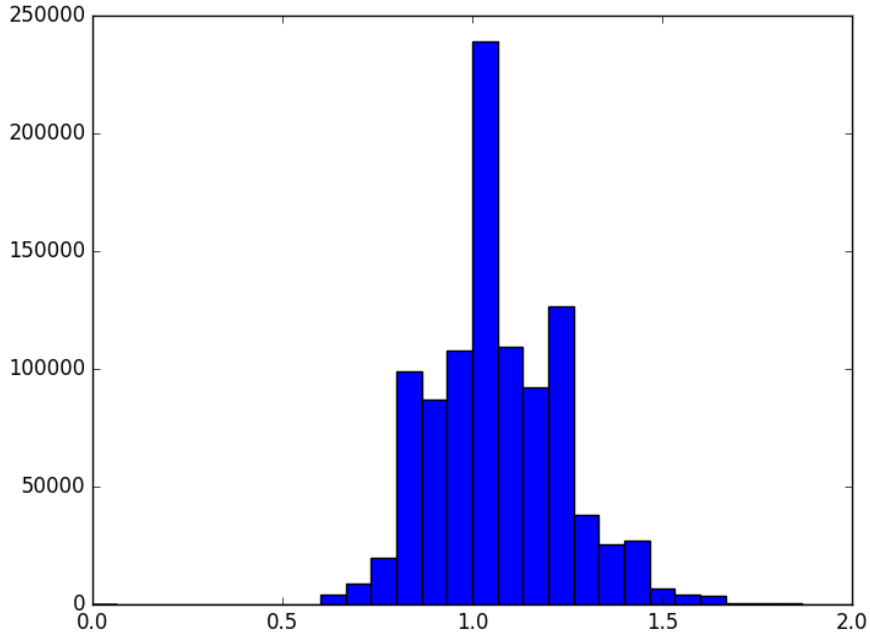
3. “CB-strategy” by team #5 (Ch. Binder)

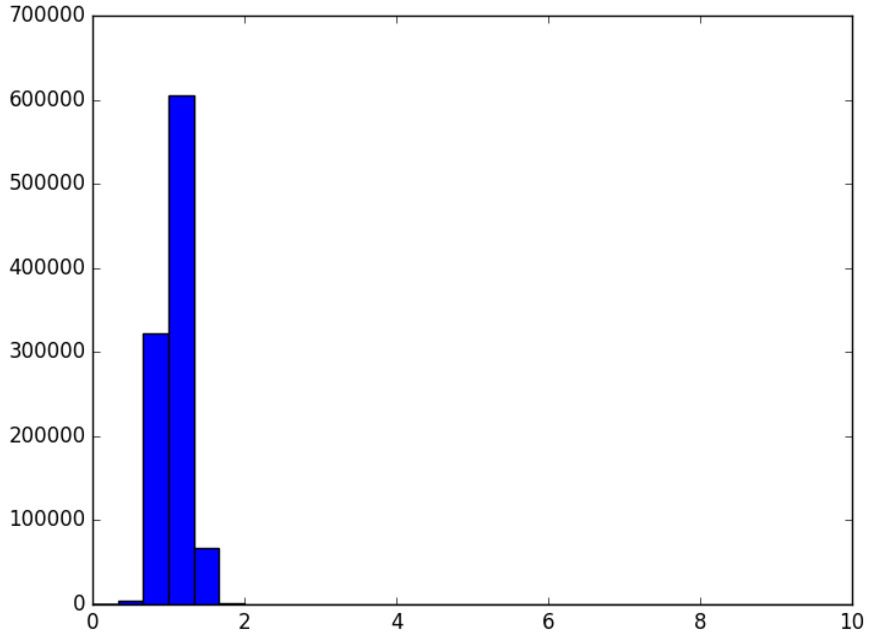




$\mathbb{E}[\text{pps}] = 1.02006435$

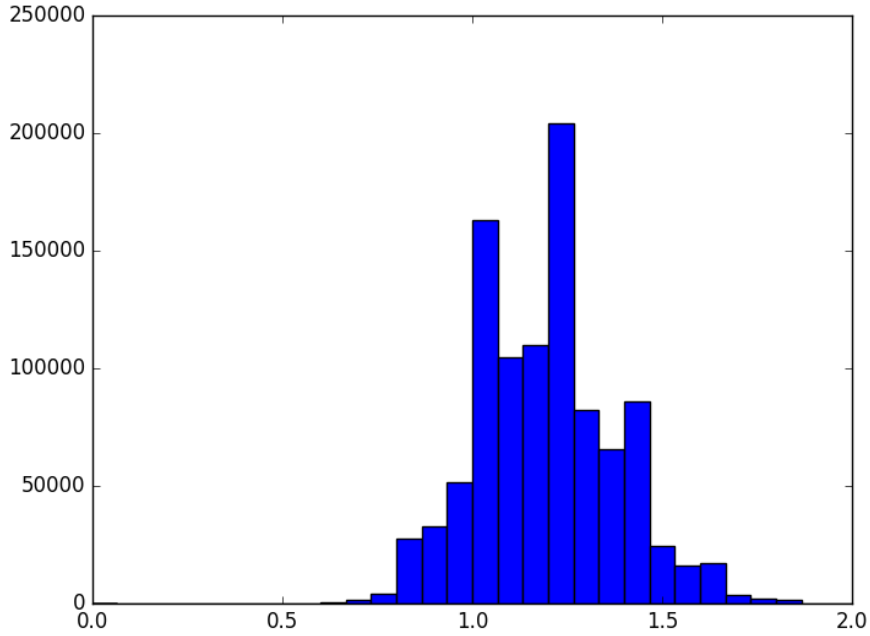
4. “Back and Forth Strategy” by team #6 (B. Martinsson and A. Älgmyr)

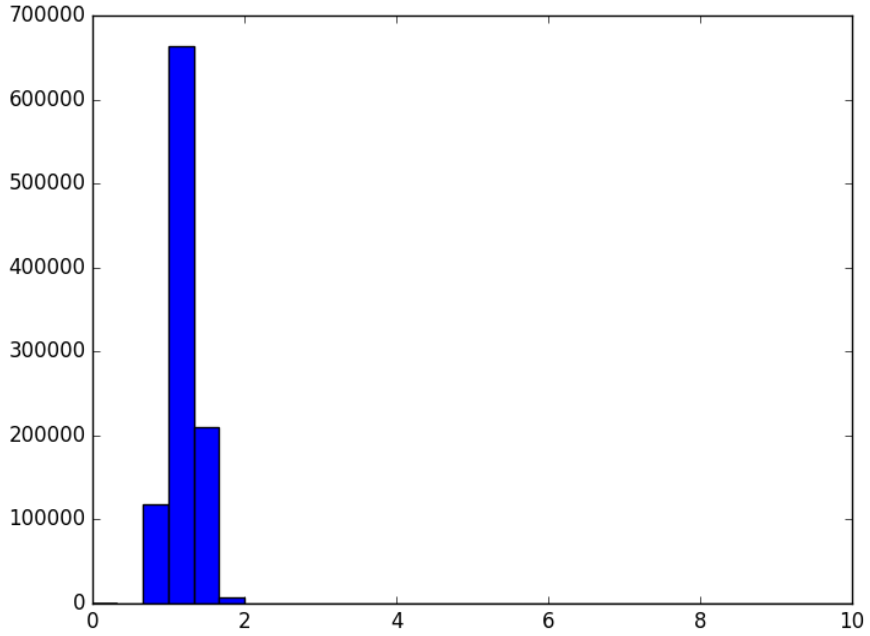




$\mathbb{E}[\text{pps}] = 1.0593222$

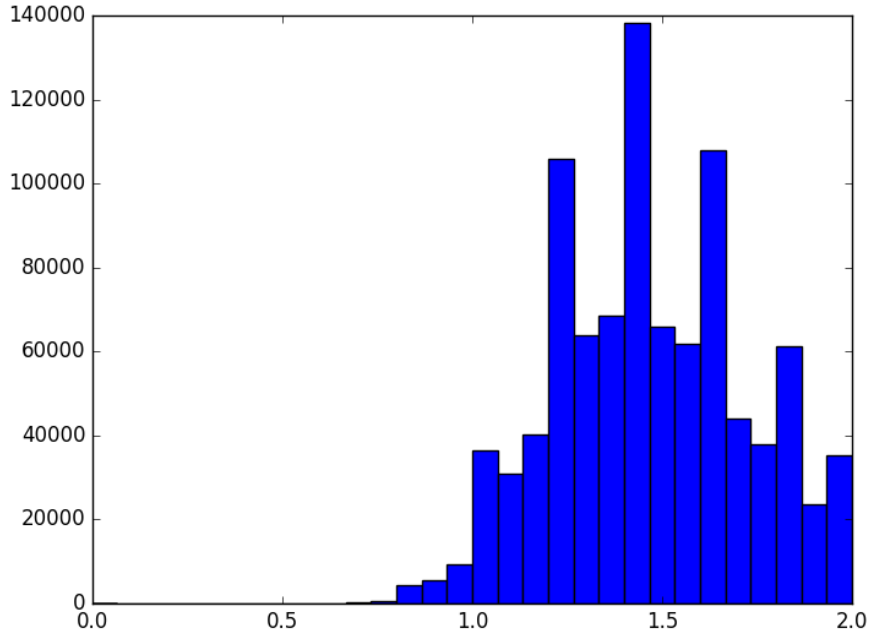
5. “Graph strategy” by team #4 (M. Tyszkiewicz and J. Tyszkiewicz)

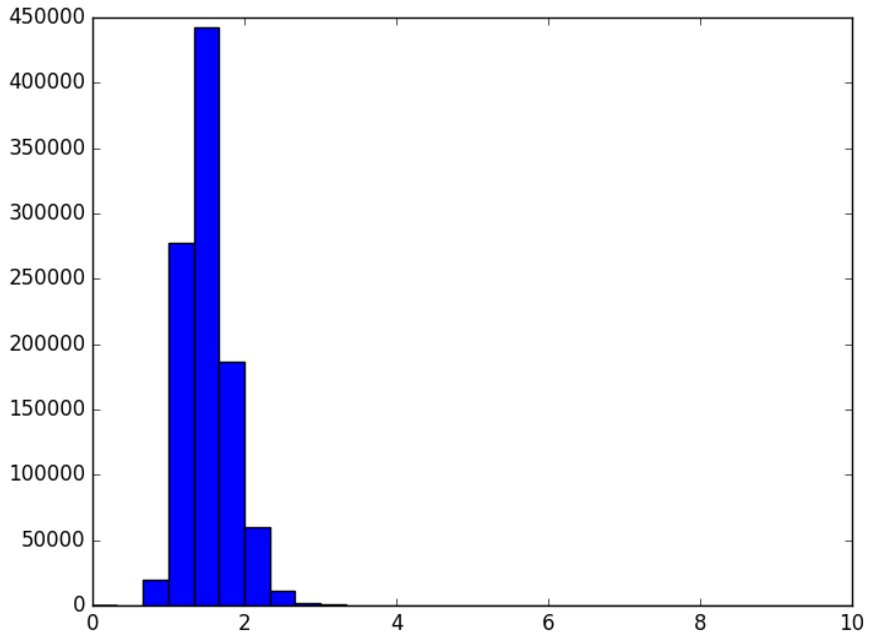




$\mathbb{E}[\text{pps}] = 1.1868636$

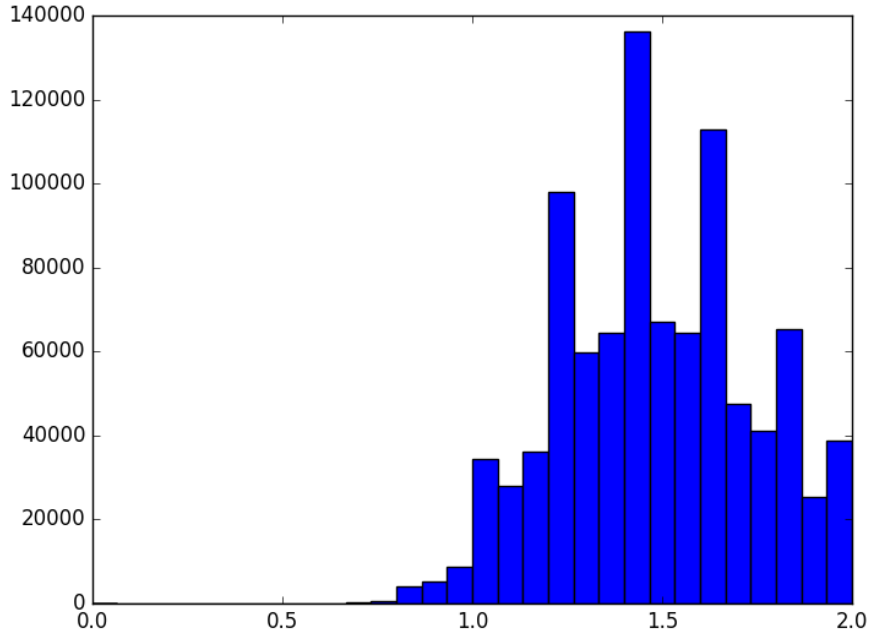
6. “Pickupcomparison” by team #7 (C. C. Assmann)

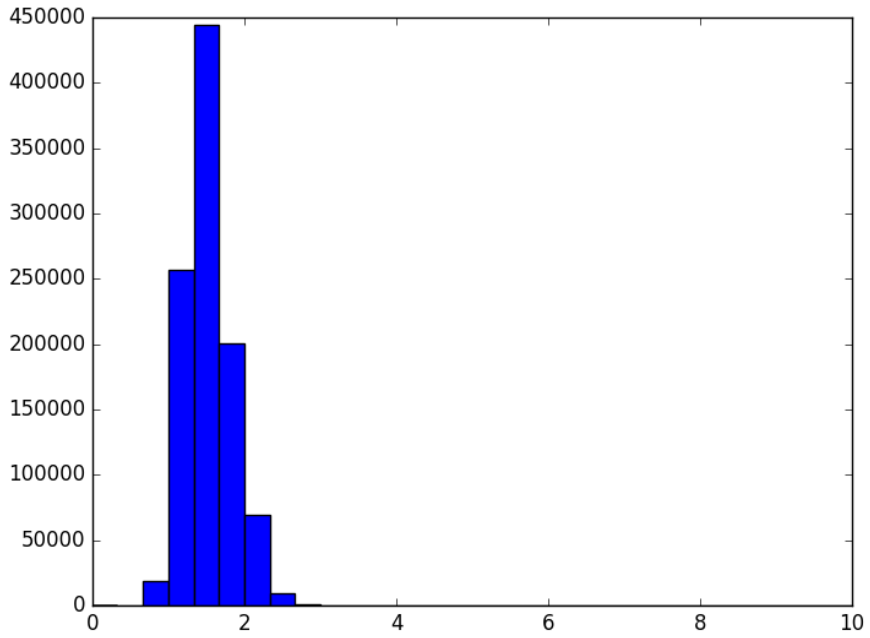




$\mathbb{E}[\text{pps}] = 1.5052534$

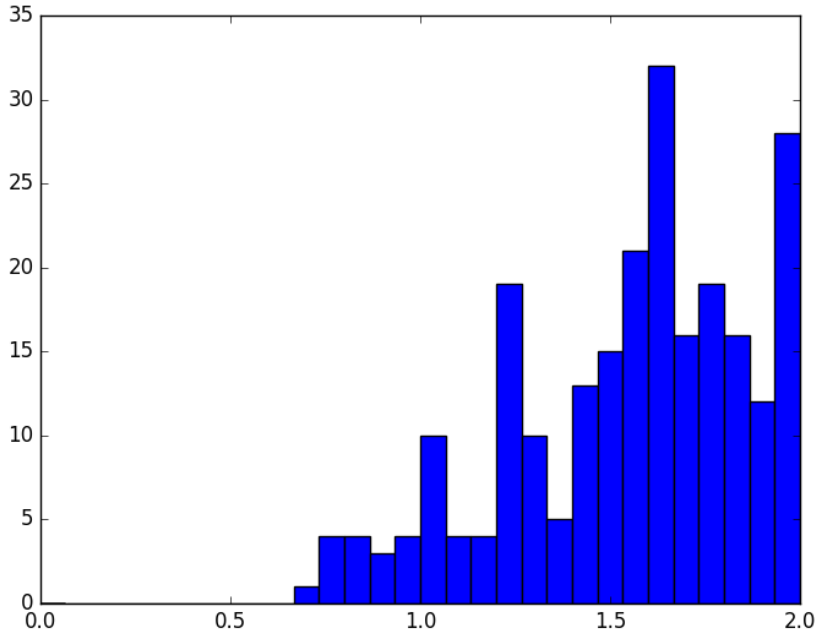
7. “MWeigelt” by team #8 (M. Weigelt)

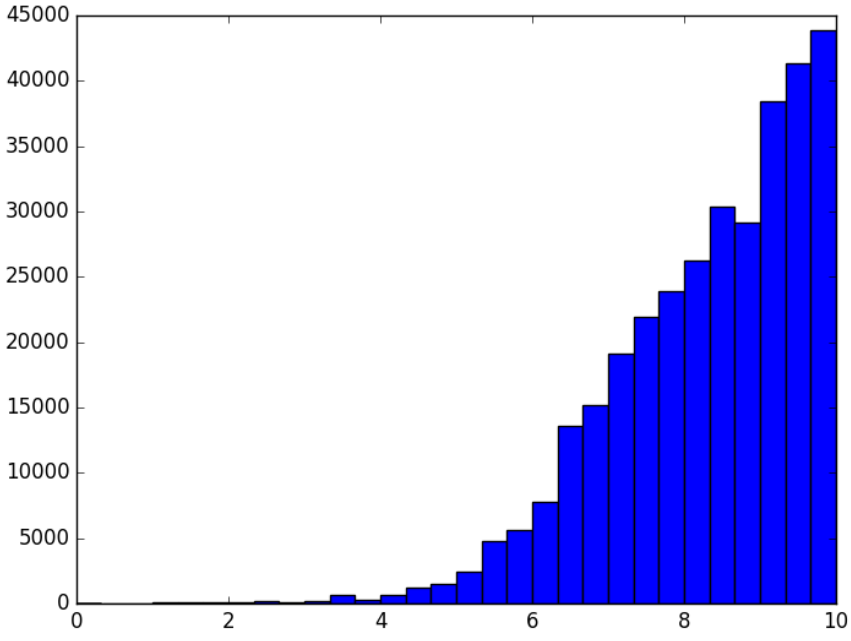




$\mathbb{E}[\text{pps}] = 1.5192334$

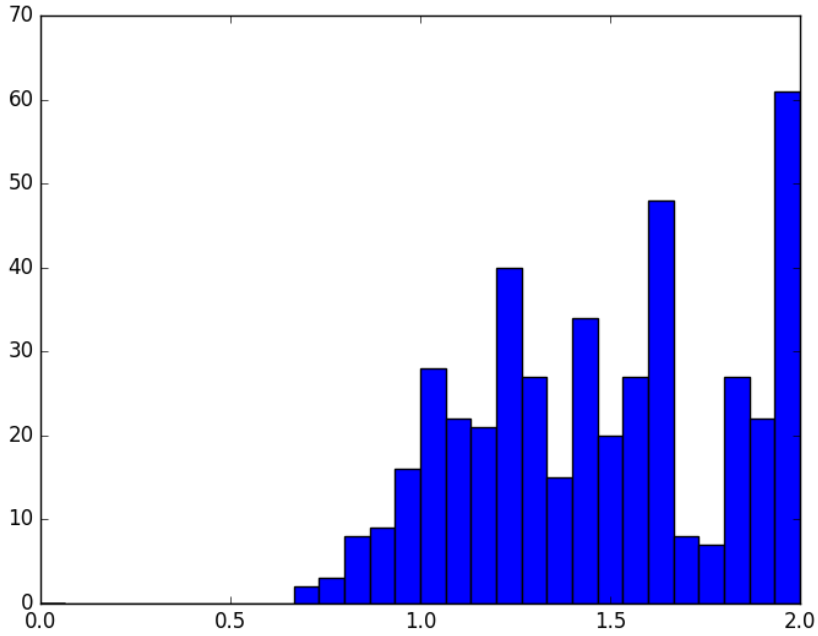
8. “Dani’s Artificial not-Intelligence” by team #1 (D. Kurmann)

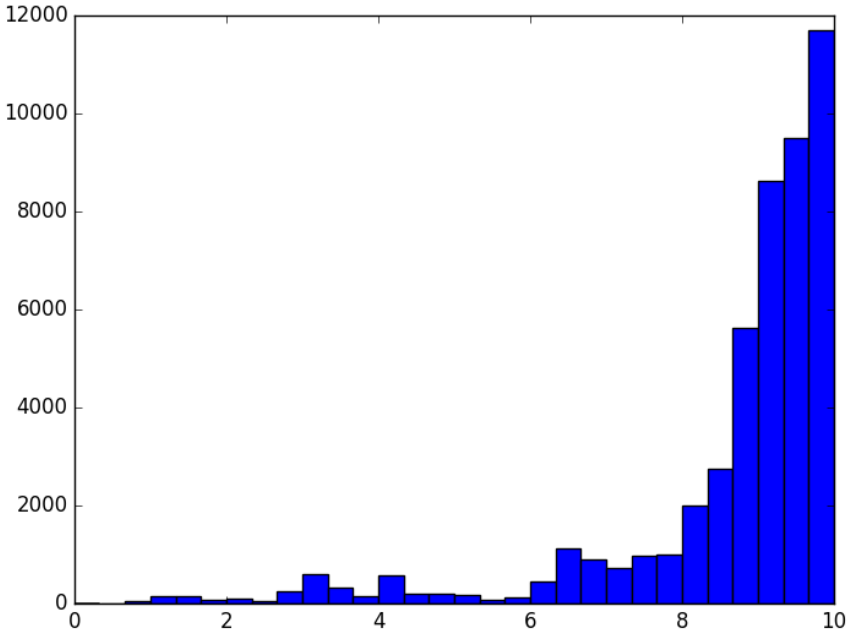




$\mathbb{E}[\text{pps}] = 11.100426$

9. “Greedy mGA” by team #3 (D. Ochsner)





$\mathbb{E}[\text{pps}] = 16.96610475$

10. “PENDEL” by team #9 (L. Groner)

Disqualified due to bus capacity constraint violation.

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Decision

We award

- 500 EUR, sponsored by TWT GmbH, to team #10 (J. Särnbratt and O. Düsterdieck).
- 150 EUR to team #5 (Ch. Binder), and
- 150 EUR to team #6 (B. Martinsson and A. Älgmyr).

Disclaimers:
The author of the best strategy has decided to forgo the prize. We note that the winners (team #10) sent in their solution four weeks late, but before the others were made public. On the other hand, the other teams were given preliminary results and additional time to improve their solutions. In the spirit of this competition and in view of various other constraints (such as courses and exams of the student participants) we believe that the decision is fair. We thank again everyone for their participation.

On behalf of the organizers: R. Andreev (busybus@null.net), July 21, 2017.