

Predicting donor retention times by Aalen Additive Survival model

Will Tong, PhD

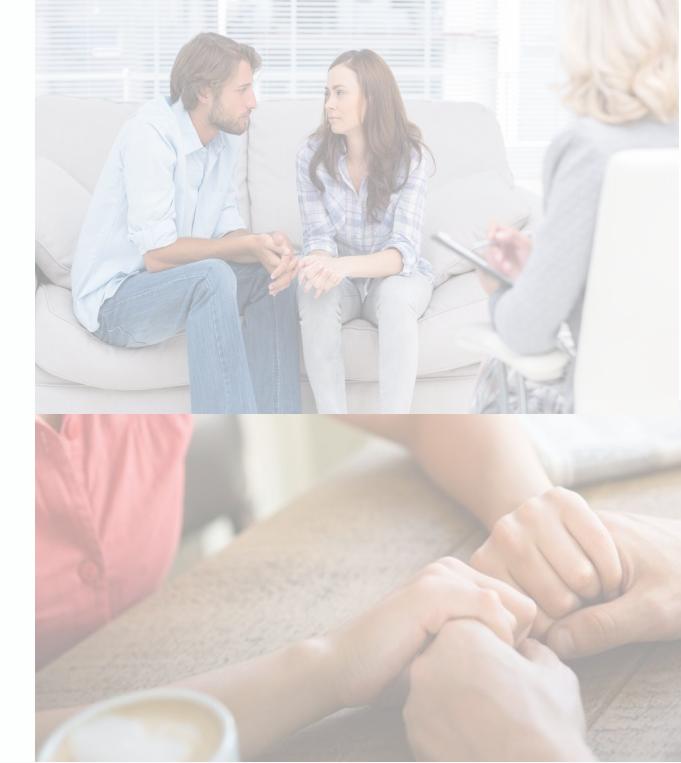
South Bay non-profit data base

In general

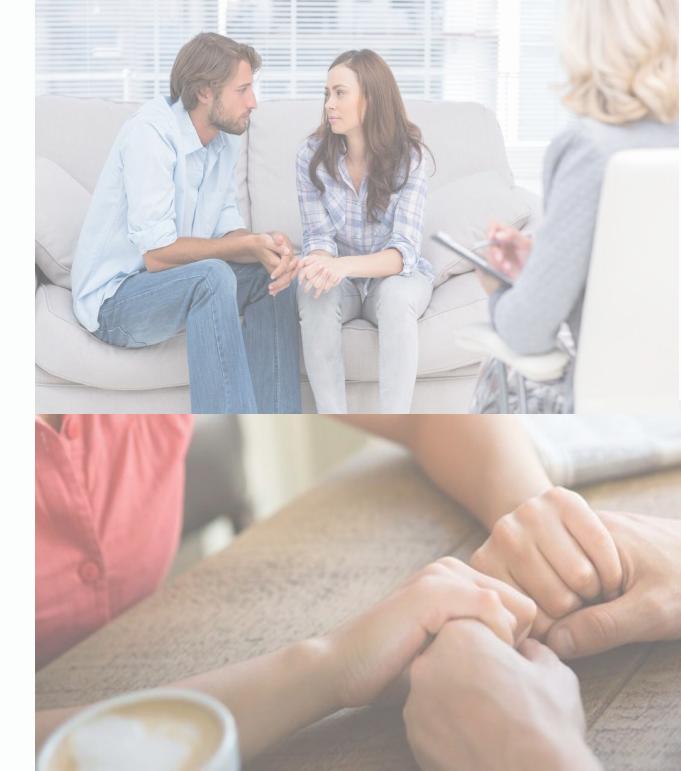
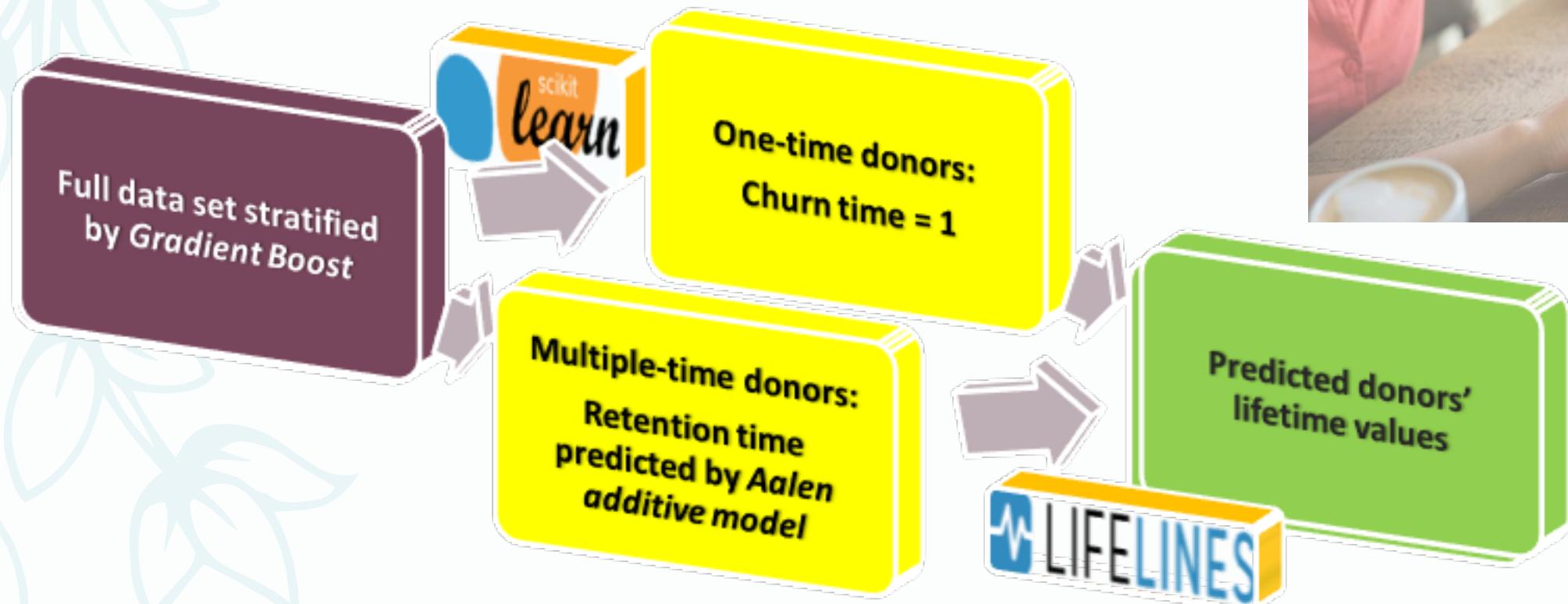
- Traditional donor retention rate is very low.
- Cost of retention can be high (often unknown).
- Only 10 % of funding comes from donations

Goals: A model for predicting Donors'

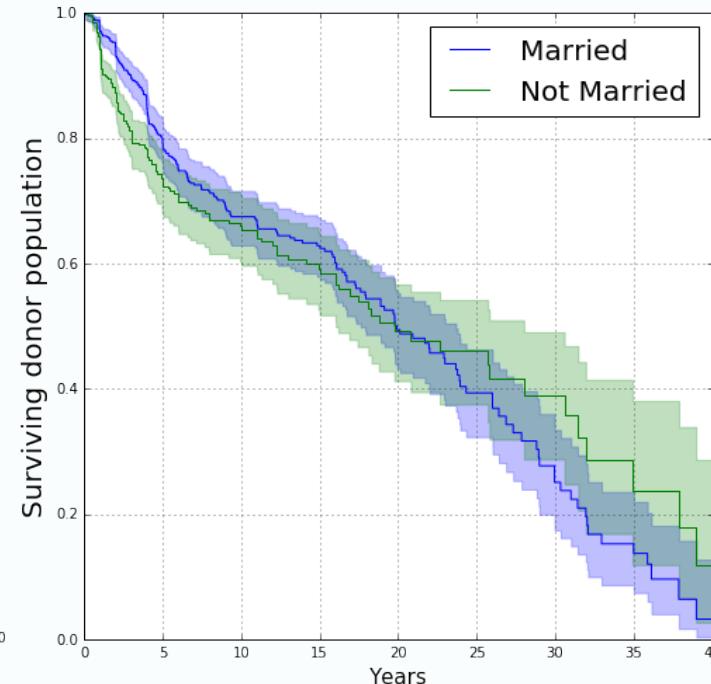
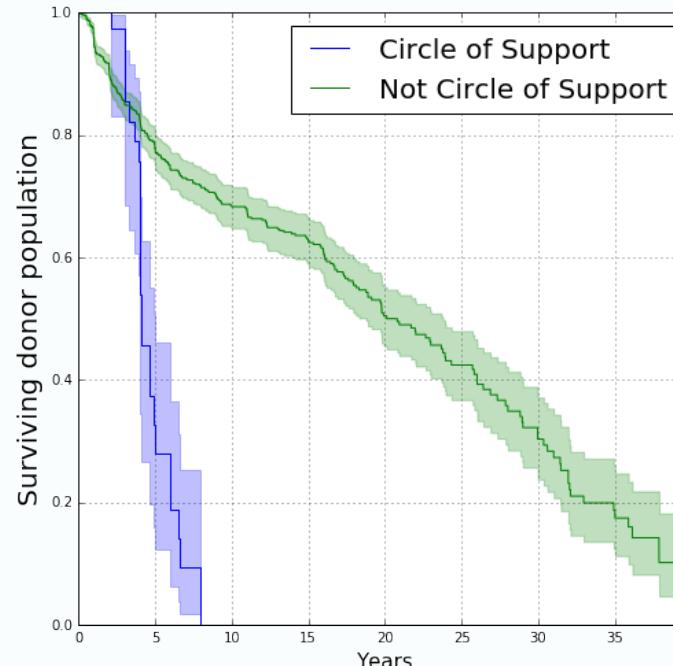
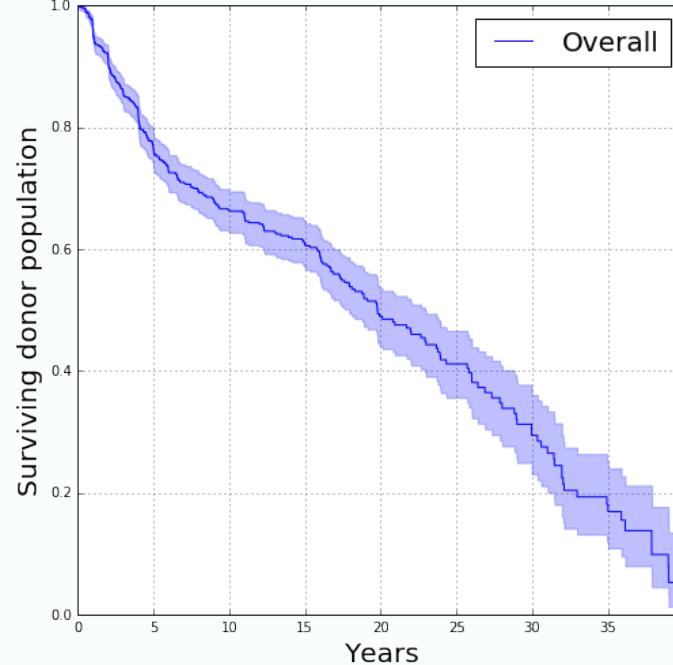
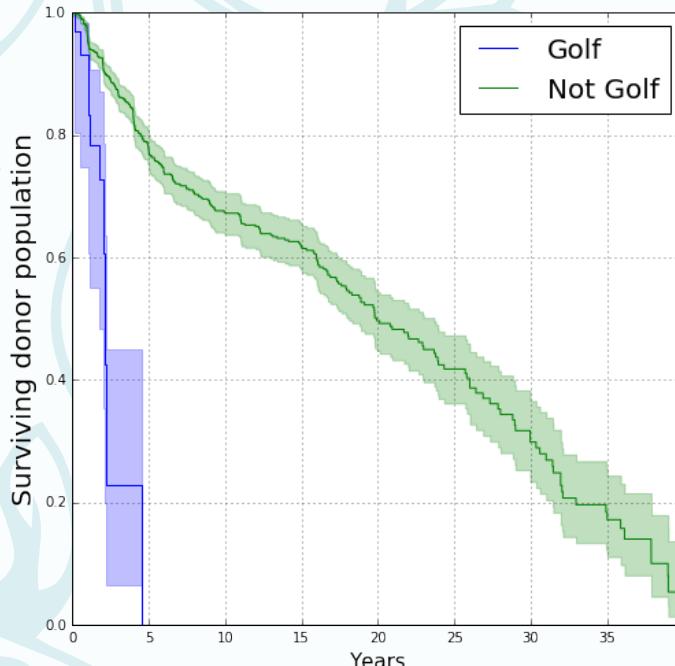
- Retention times
- Hazard profiles
- Lifetime values



Pipeline



Kaplan Meier Curves



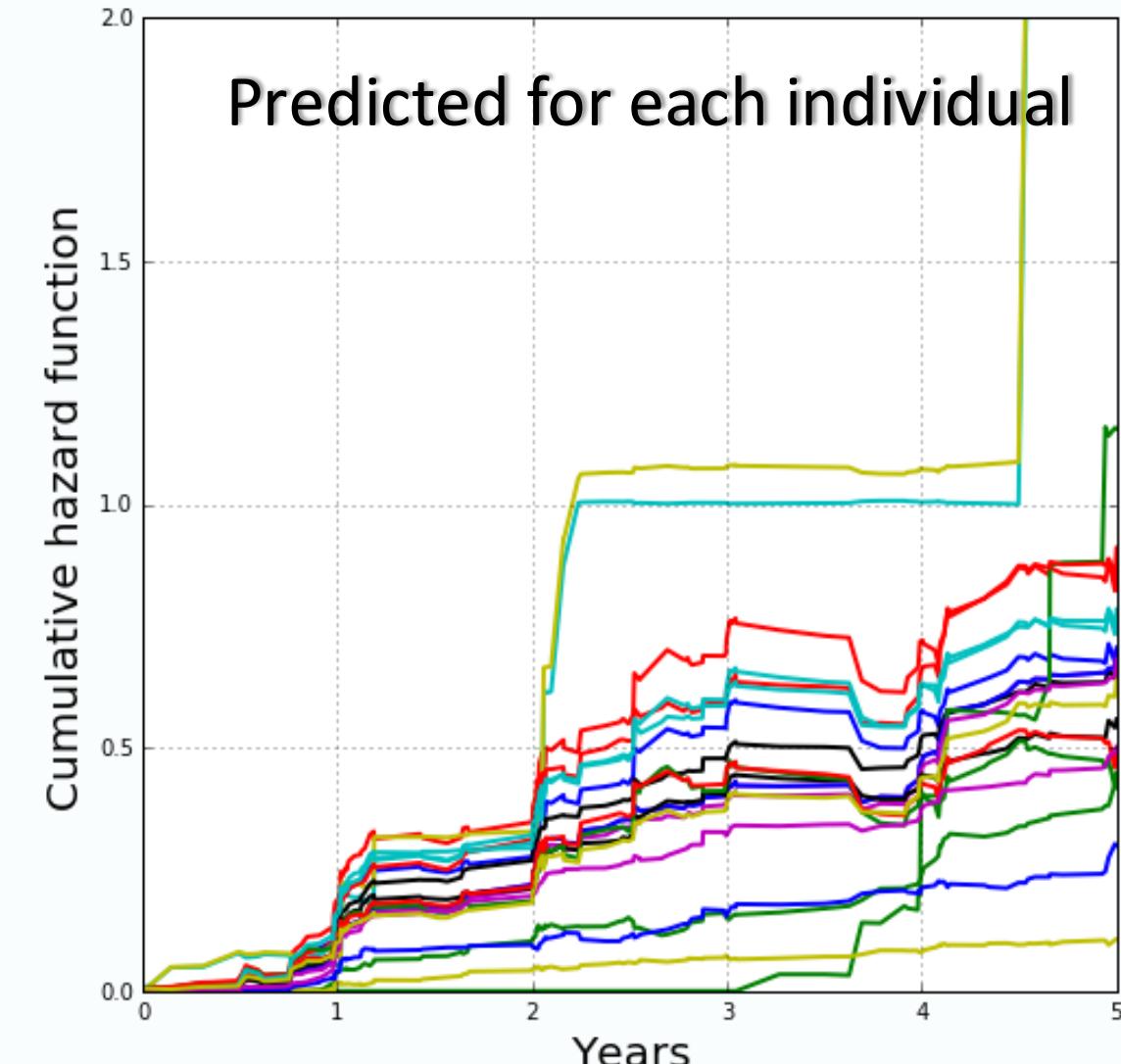
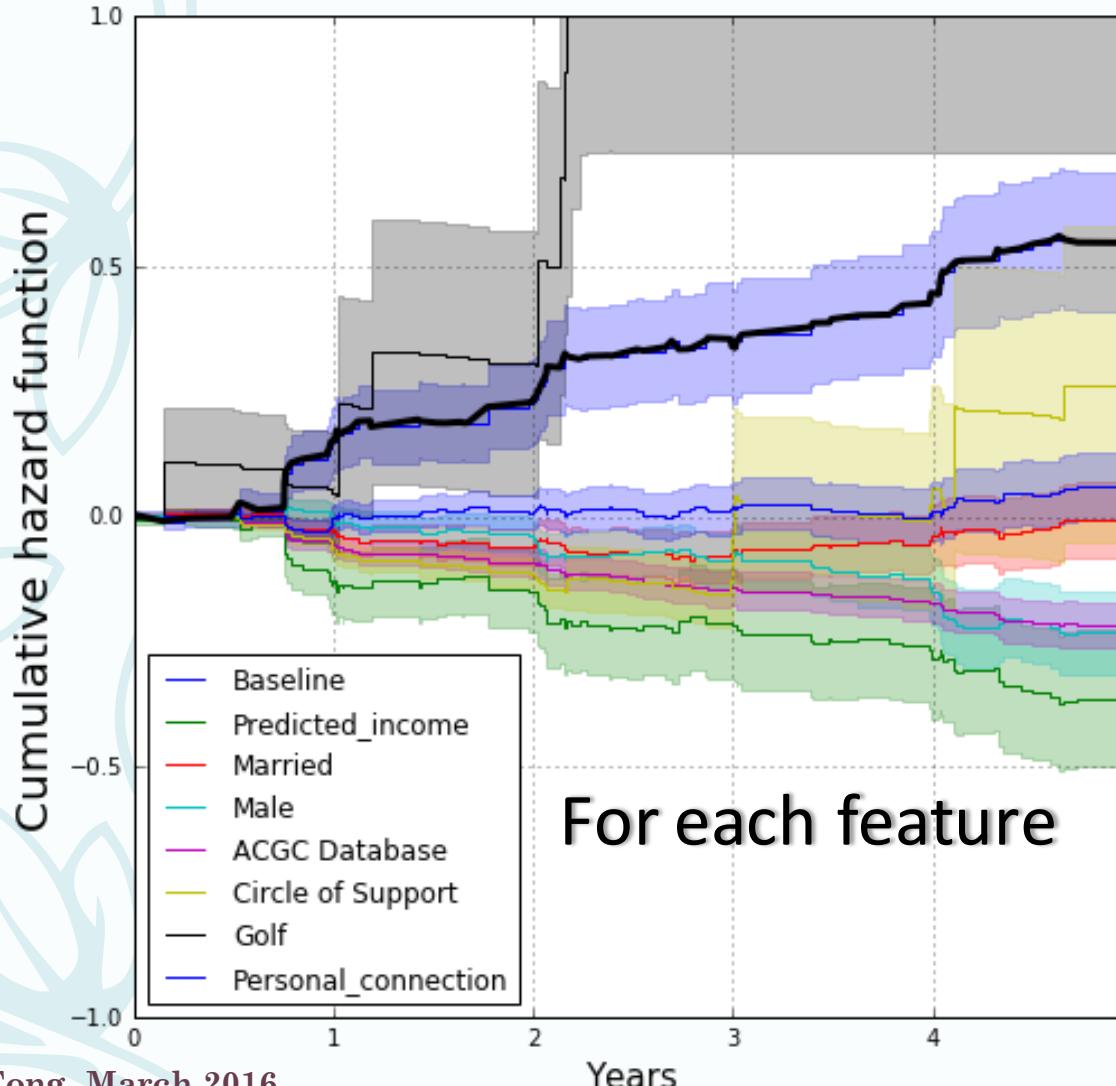
IMPORTANT FEATURES

1. *Predicted income (from ZIP)*
2. *Golf*
3. *Circle of Support*
4. *Married*
5. *Male*
6. *ACGC Database*
7. *Personal connection*

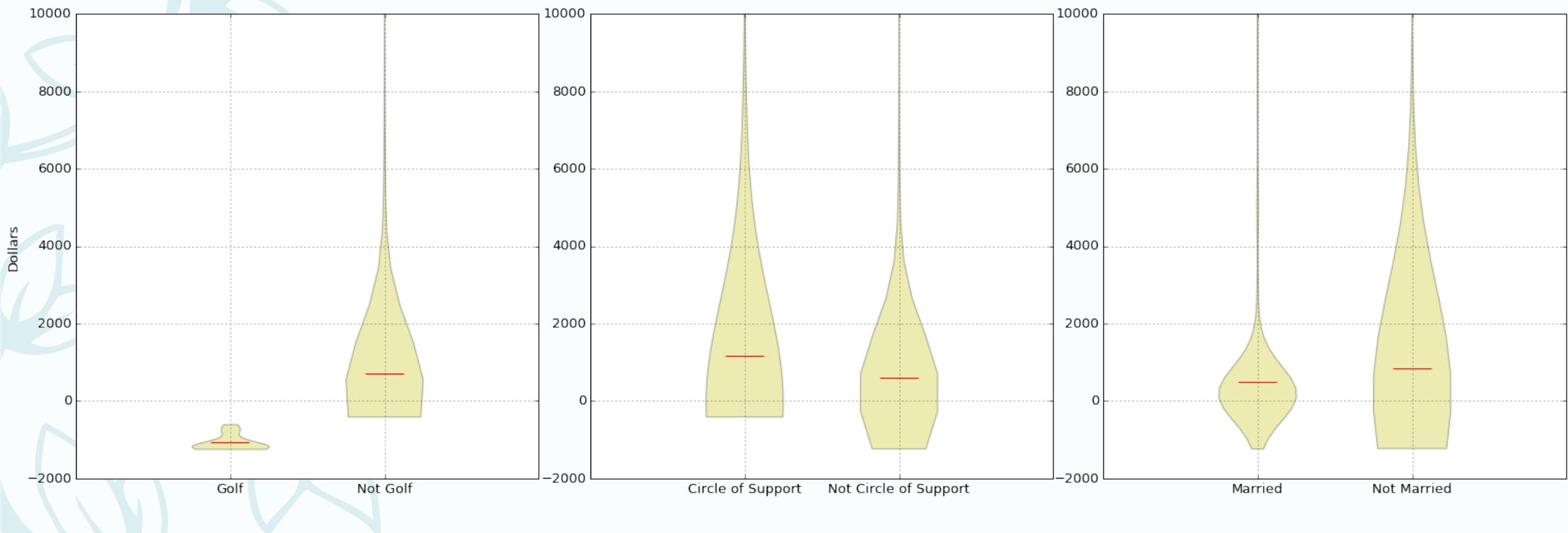
Aalen Additive Hazard model

Hazard rate for Aalen's additive function

$$\lambda(t) = b_0(t) + b_1(t)x_1 + \dots + b_N(t)x_T$$



Predicted Donor Lifetime Values





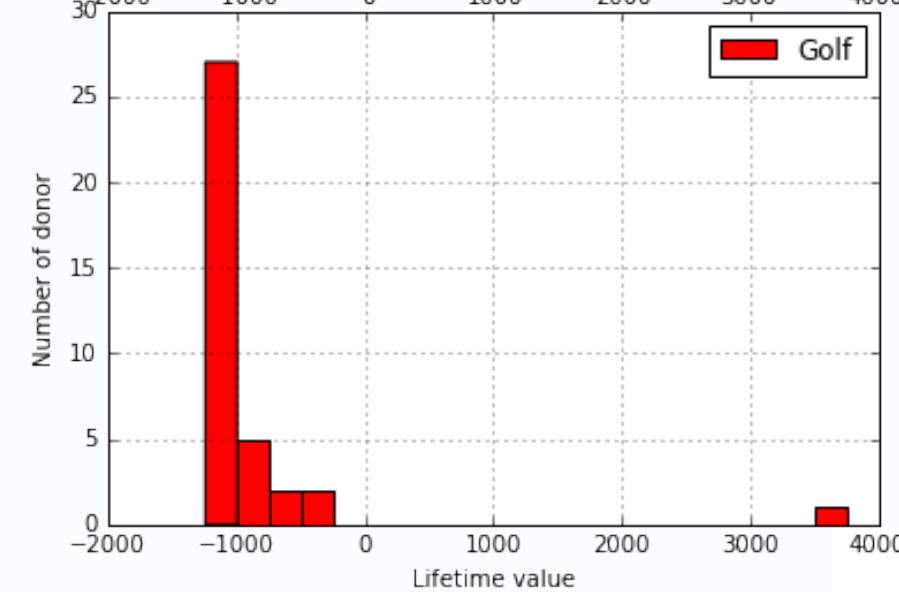
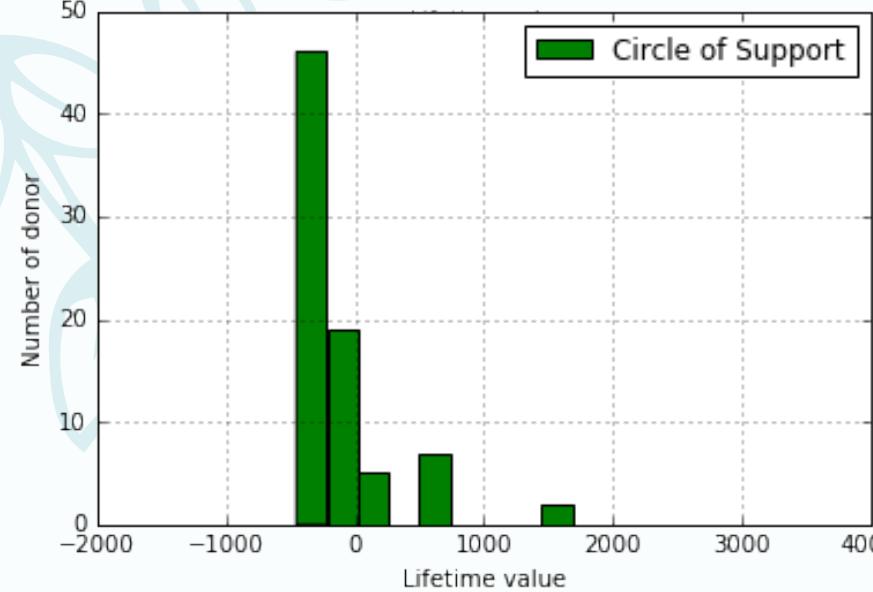
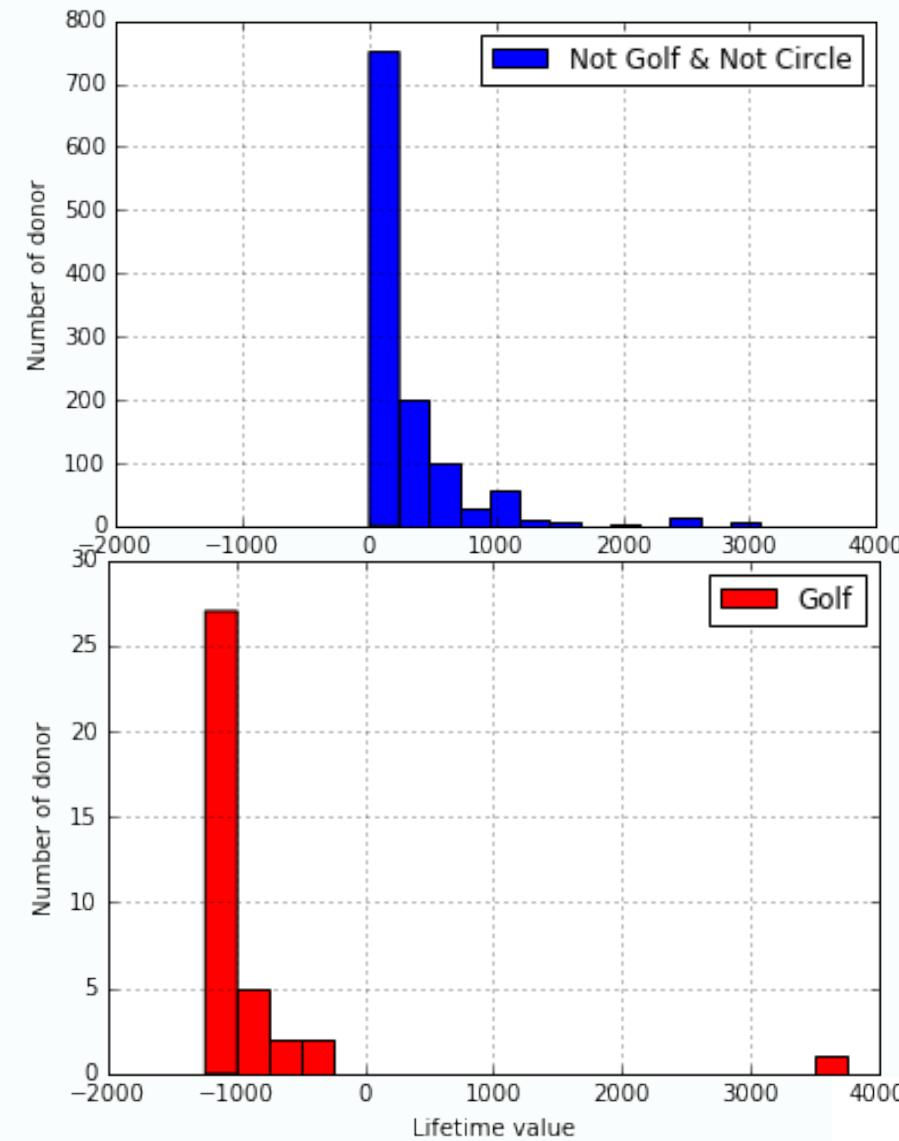
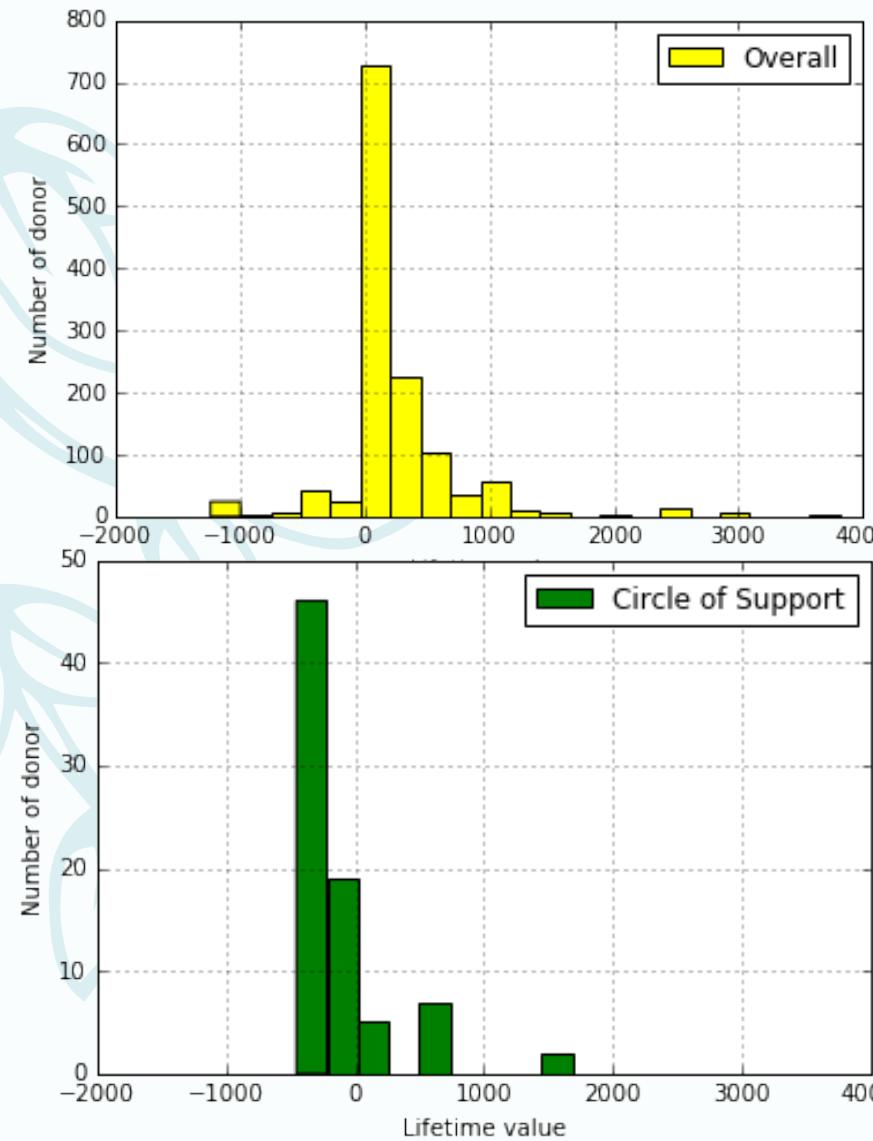
Thank You in various languages:

- Buznyg (Ukrainian)
- Shukriya (Arabic)
- ThintKo (Burmese)
- Blagodaram (Georgian)
- Matondo (Swahili)
- Mercé (Portuguese)
- Taiku (Chinese)
- Dakujem (Croatian)
- Terimakasih (Indonesian)
- Gràcies (Catalan)
- Faleminderit (Portuguese)
- NajisTuke (Lithuanian)
- Efharisto (Macedonian)
- Hvala (Croatian)
- Nirringrazzjak (Maltese)
- Bayarlalaa (Mongolian)
- TapadhLeat (Irish)
- WaadMahadsantahay (Somali)
- FaafetaiLava (Fijian)
- Ngiyabonga (Papua New Guinean)
- Takk (Maltese)
- Enkosi (Swahili)
- M-Sapo (Swahili)
- Dank (Dutch)
- Dhanjavad (Hindi)
- Trugarez (Welsh)
- Aabhar (Urdu)
- BarakAllahuFik (Arabic)
- Graffi (Italian)
- Mèsi (Chinese)
- Xièxie (Chinese)
- Dziakuju (Polish)
- Chokrane (Georgian)
- Kiitos (Finnish)
- Mauruuru (Finnish)
- GoRaibhMaithAgat (Irish)
- KyayIzuInPafe (Burmese)
- Mochchakkeram (Burmese)
- Barkal (Swahili)
- KurreSumanga (Swahili)
- AabbariAabe (Swahili)
- Gracias (Spanish)
- Tenki (Japanese)
- Danke (German)
- Spacibo (Polish)
- Gratzias (Yiddish)
- Rahmet (Turkish)
- GratiasAgo (Portuguese)
- Gracie (Portuguese)
- Cámon (Spanish)
- Saha (Malay)
- Marhaba (Arabic)
- Diky (Fijian)
- TakkFyri (Fijian)
- Multumesc (Romanian)
- Mijigwech (Blackfoot)
- Tanmir (Arabic)
- Akiba (Arabic)
- Tak (Malay)
- Sagolun (Malay)
- Motashakkeram (Burmese)



Reserves

Donor Churn times



Kaplan Meier Curves

