

Request for Proposals American Family Insurance

As part of the recently announced 10-year partnership with UW-Madison, American Family Insurance (AFI) has committed funds for “Business Exploration” to support relevant and high-value research and programming at UW-Madison.

This RFP includes five project overviews from American Family Insurance (AFI). AFI anticipates allocating \$100,000 to \$200,000 in total funding for awards made in calendar year 2016. The number of projects to be funded will be based on UW researcher interest and fit with AFI goals.

Process:

Now-January 31, 2016: Please review the five projects and if interested, submit a high-level 500 word proposal outlining your approach to the project (focus, estimated timeline and estimated budget) and benefit that AmFam will receive:

- Due date for initial proposals is January 31, 2016
- Proposals should be submitted to: Eric Steege esteeg@amfam.com

Early February 2016, Preliminary Review: AFI selection committee will review proposals and notify researchers whose proposals have been selected for preliminary review. These selected researchers will meet with AFI committee to discuss their high-level proposal in person. Researchers not selected to participate in this step will be notified promptly and encouraged to submit proposals in future RFP processes.

Late February 2016: Second Review: Following the preliminary review, researchers whose projects are selected by AFI for further review will be asked to develop a more detailed concept paper, budget, timeline and deliverables and meet again with the AFI committee to discuss their proposal.

Early March 2016: AFI will select projects to fund in 2016

Late March 2016: AFI will notify UW researchers of funding decision and amount to be funded

Please see the attached Frequently Asked Questions for additional information.

If you have a question that is not addressed, please contact: Eric Steege at American Family: esteeg@amfam.com

Disclaimer

This is a Non-Binding Request for Proposal (RFP). This RFP is not an agreement and does not constitute an offer nor is it an invitation or solicitation for any supplier or any other person to become a provider of products or services to the Company, or any subsidiaries thereof. This RFP contains no contractual proposal of any kind; any proposal submitted will be regarded as a proposal by the supplier and not as an acceptance by the supplier or of any proposal by Company. In addition, Company reserves the right, at its sole discretion, to update, remove, cancel, amend or supplement this RFP. The supplier will bear all its costs, expenses or losses associated with or relating to the preparation and submission of its Proposal including any demonstrations or presentations which may be required by the Company. Company will not be responsible for, nor will it pay for, any costs, expenses or losses which may be incurred by supplier as a result of any update, removal, cancellation, amendment, or supplement to this RFP. Company may accept or reject any or all Proposals and is not obligated to contract with any supplier.

October 1, 2015



UW-AFI CLV Simulation Proposal

Research Title:

CLV Simulation Proposal

Introduction/Scope:

Simulation techniques are often used in insurance to estimate the total variability of held claims reserves, giving a company an idea of the total level of uncertainty contained in its liabilities and by extension its exposure to adverse development. Simulation techniques have also been used to estimate customer lifetime value in a variety of industries. This research project would develop and adapt these simulation techniques to describe the lifecycle of an insurance customer, leading to a robust estimate of lifetime value.

Research Proposal:

Investigate and develop simulation methods or techniques to describe various events in a customer's insurance lifecycle. These would include determining whether an event takes place (e.g., a claim occurs or a new car is purchased, etc.), the timing of the event if it does, and the magnitude of the event, if warranted.

Once the customer lifecycle is modeled, the research would move on to understanding/predicting the overall performance of the insured portfolio, providing a basis for estimating impacts for various business decisions.

November 1, 2015



UW-AFI Ethnography of Home Security Proposals

Research Project Title:

Ethnography of Home Security

Introduction/Scope:

American Family Insurance strives to protect their customers – from their dreams through their physical assets and families. Our research shows that despite burglary being a small percentage of claims people make, that home security continues to be a top concern of homeowners.

Research Proposal:

This project would be to conduct an ethnography of home security in order to better understand perceptions and habits people have surrounding the notion of home security. What fears do people have and what drives those fears – where do fears come from, what intensifies or alleviates those fears? What makes a person likely to implement a home security solution -- from home grown solutions like bells hung on the fence door through installing alarm systems like ADT? What types of solutions improve a person's perception of safety, regardless of whether safety was actually increased? How does the demographic of the customer impact perceptions of security and solutions a person desires to implement. The research conducted in this project would help American Family Insurance determine what types of solutions would be best received by certain customers and would allow us to start pilots in those areas rather than a broad spectrum of solutions across a broad spectrum of customers

November 1, 2015



UW-AFI Perceptions of Home Security Proposal

Research Project Title:

Closing the Gap Between Perception of Home Security and Actually Improving Home Security

Introduction/Scope:

American Family Insurance strives to protect their customers – from their dreams through their physical assets and families. Some of our initial research about the home suggests that when customers are concerned about home security, they implement solutions that make them ***feel*** safer. However, these solutions do not actually always improve safety in the home.

Research Proposal:

This project would be to determine methods of helping people understand or act on the difference between perception of home security and actually being more secure. For example, hanging jingle bells on your fence door may be a useful tool to alert you when your neighbor stops by to say hello, but may not be the most secure method to ensuring that someone looking to burglarize your home is scared off or that you will be alerted to his presence. This project would determine methods of conveying information about home security solutions in a manner that people understand and will act on. As a baseline, research needs to be done or reviewed regarding home security solutions and which are the best options for various types of scenarios, demographics, or situations. Using that information, research will determine what types of messages are most effective in helping people understand and/or act on changes to effect actual risks.

UW-AFI Persistent Homology of Claims Notes Proposal

Research Title: Persistent Homology of Claims Notes

Introduction/Scope: There are a number of established text-mining techniques that have been applied successfully across a wide range of use cases. This proposal seeks to determine whether using persistent homology can improve on the existing techniques and increase the information and insight extracted from text data sources. Persistent homology is a method from the recently developed field of topological data analysis that has been applied to the analysis of images [1], electrode array data [2], and text [3], [4]. The richest data about a claim is often the text of the claims notes, so while the notes have been analyzed and mined using traditional methods, any additional information available therein is likely to be very valuable and insightful. This proposal will apply persistent homology in the analysis of claims notes text with the aim of aiding understanding of and improving customer satisfaction throughout the claims process.

Research Proposal:

Investigate the use of persistent homology to extract features from text of claims notes. Two broad potential avenues of interest are using persistent homology to directly analyze claims satisfaction and using persistent homology as an input into other models of claims satisfaction.

Direct Use of Persistent Homology

Customers express satisfaction of the claims process on a scale from 1 (poor) to 5 (very satisfied). This avenue will investigate whether persistent homology of claims notes varies with satisfaction, and if so, develop a robust implementation. Two interesting potential ideas for investigation are:

- Use persistence landscapes to compute average persistence homology for each satisfaction level.
- Build a k nearest neighbors model in the space of first persistent homology groups (using methodology in [4]) using the bottleneck distance as a metric.

Persistent Homology as Feature

There are many potentially meaningful features that can be extracted from persistent homology to serve as input into a predictive model (e.g. random forest or logistic regression). A few potential ideas (viewing persistent homology as a collection of intervals, excluding or capping intervals of infinite length) are:

- Lengths of longest n intervals for some fixed n .
- Start and end points of longest n intervals for some fixed n .
- Number of intervals with length greater than c for some fixed c .
- Basic statistics (e.g. mean, standard deviation, coefficient of variation, percentiles) of intervals.
- Change in persistent homology (using bottleneck distance) as new notes are added to a claim.

Should any of the first three bullets above prove useful, determining optimal values of n or c is another potential avenue of investigation.

References

1. G. Carlsson, T. Ishkhanov, V. de Silva, and A. Zomorodian, on the local behavior of spaces of natural images, *International Journal of Computer Vision*, (76), 1, 2008, pp. 1-12.
2. G. Singh, F. Memoli, T. Ishkhanov, G. Carlsson, G. Sapiro and D. Ringach, Topological Structure of Population Activity in Primary Visual Cortex, *Journal of Vision*, Volume 8, Number 8, Article 11, pp. 1-18, 2008.
3. H. Wagner, P. Dlotko, M. Mrozek, Computational Topology in Text Mining, *Computational Topology in Image Context 2012. Lecture Notes in Computer Science*, vol. 7309, pp. 68{78. Springer, Heidelberg 2012.
4. X. Zhu, Persistent homology: An introduction and a new text representation for natural language processing, *Proceedings of the Twenty-Third International Joint Conference on Artificial Intelligence*, pp. 1953{1959, 2013.

October 1, 2015



UW-AFI Social Media Proposal

Research Title:

Usage of Social Media Data to Predict Customer Retention

Introduction/Scope:

This research project is to evaluate the relationship between the customer's use of social media and their propensity to remain a customer.

Research Proposal:

We wish to achieve two main outcomes from this research:

1. Acquisition and understanding of data from social media sources (Facebook, Twitter, Yelp, etc.). This would include the development of methods to analyze social media content and extract information (i.e., feature creation).
2. Build models from the work in step 1 that identify key drivers of retention or attrition. The objective would be to find ways to improve customer retention. Knowing when a customer is more likely to leave will give the company an opportunity to be more targeted in efforts to save the relationship.

American Family Business Exploration RFP 2016

Frequently Asked Questions

Q: How much funding is available for each project?

A: Amounts are flexible depending on proposal. American Family (AFI) anticipates allocating \$100,000 to \$200,000 in total funding for awards made in calendar year 2016.

Q: Should indirect costs be included in my budget proposal?

A: Yes. The type of project may change during the process, but at this point, the projects submitted by AFI appear to be research projects, so indirect costs should be included in the budget estimate. UW-Madison's current indirect cost rate is 53%.

Q: Who at American Family will be reviewing these proposals?

A: A four-person selection committee made up of AFI employees from Innovation, Business Development, Claims, and Data Analytics units.

Q: Why are two application steps required?

A: The first step (500 word application submission) is meant to be a "low hurdle" way for faculty/researchers to apply and for AFI to determine initial interest and project fit. If a project is of interest to AFI, the second step allows faculty/researchers to provide a more detailed proposal for a review by and discussion with the selection committee. This meeting will provide the opportunity for a conversation about why you are the best person at UW to conduct this type of work, as well as budget, deliverables, and timelines.

Q: How much detail is required for the second proposal review?

A: You should provide a detailed scope of work including: why you are the best person at UW to conduct this type of work, project budget / timelines / deliverables, and what type and level of involvement by AFI would be required, if any.

Q: Will I receive feedback on the specific reason my proposed project was not funded?

A: Every effort will be made to provide substantive feedback.

Q: Will I have an opportunity to revise scope or budget if my proposal was not selected?

A: Yes, if the selection committee is interested in the proposal but would like to see a different timeline, budget, or set of deliverables, you will be given the opportunity to make changes.

Q: What happens if my proposal is selected by AFI but the funding available is less than my proposed budget and not sufficient to complete the work?

A: There will be a discussion with AFI about budget, deliverables and funding amount.