



Software Engineering Seminar (WS 2015)

# Static Analysis for Estimating Memory Consumption of Applications

## Description

Inferring the maximum and minimum amounts of irreclaimable objects in an application heap is critical to analyzing potential heap-memory consumption of stand-alone applications or libraries. An interesting approach is to estimate this resource consumption in a static manner [2], possibly by the introduction of contract-like annotations [4] and/or symbolic calculation [1]. Accurate memory consumption estimates would have an impact that extends beyond this introduction. In particular, accurate estimates for embedded and/or smartphones applications could impact hardware cost as well as energy consumption estimates [3].

## References

- [1] Elvira Albert, Samir Genaim, and Miguel Gómez-Zamalloa. Parametric inference of memory requirements for garbage collected languages. In *ACM Sigplan Notices*, volume 45, pages 121–130. ACM, 2010.
- [2] Víctor Braberman, Diego Garbervetsky, Samuel Hym, and Sergio Yovine. Summary-based inference of quantitative bounds of live heap objects. *Science of Computer Programming*, 92:56–84, 2014.
- [3] Kolin Paul and Tapas Kumar Kundu. Android on mobile devices: An energy perspective. In *Computer and Information Technology (CIT), 2010 IEEE 10th International Conference on*, pages 2421–2426. IEEE, 2010.
- [4] Jonathan Tapicer, Diego Garbervetsky, and Martin Rouaux. Resource usage contracts for. net. In *Proceedings of the 1st Workshop on Developing Tools as Plug-ins*, pages 56–56. ACM, 2011.

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