

# PARALLEL PROGRAMMER

## Paralel Programcı

Computational Electromagnetics Research Center (**BiLCEM**) of the Bilkent University has an opening for a parallel programmer.

**BiLCEM** has a dynamic environment, where state-of-the-art computing technologies are utilized to solve very-large-scale numerical electromagnetics problems that have important real-life applications, such as radars, antennas, cell phones, satellites, lasers and optical systems, to name a few. Solutions of such complicated but ultimately useful problems require the use of powerful computers. Parallel computing, parallel programming, and construction of parallel computer clusters are important areas of research at **BiLCEM**.

**BiLCEM** has several parallel computing platforms, including two 136-core and 64-core Intel Xeon clusters, a 16-core AMD Opteron cluster, a number of 8-core clusters, and a multitude of various PCs in its Cyberpark and EEE offices at Bilkent University. For more information about BiLCEM's computing platforms: [www.cem.bilkent.edu.tr](http://www.cem.bilkent.edu.tr). Bilkent University and Cyberpark have modern settings and friendly environments.

A candidate for the "parallel programmer" position should be an expert programmer with prior parallel-programming education and experience. The candidate is expected to be highly familiar with the following tasks and concepts:

1. Parallel programming with MPI, OpenMP, threads, POSIX
2. Multi-core, distributed, and SMP architectures
3. Networking: Infiniband, Myrinet, RDMA
4. Tracing and analyzing parallel programs
5. Parallelization strategies and algorithm design
6. Scalability optimization
7. Communication-computation overlapping
8. Programming in Fortran, C, C++, MATLAB
9. Programming and porting over multiple platforms: various architectures and OSs
10. Parallel debuggers
11. Programming in accordance with standards

Knowledge of the following tasks is not mandatory, however, will serve as a plus for the candidate:

12. Constructing parallel clusters
13. Interfacing with commercially available CAD software and GUI (such as, I-DEAS, ProEngineer, Nastran, AutoCAD, gmesh, MATLAB)
14. Developing web-based interfaces to parallel program engines
15. Implementing security measures into programs, such as passwords, licenses, expiration dates
16. Programming in accordance with military standards

In addition to a CV/resume, the candidate should submit a letter that clearly explains the candidate's education and experience (separately) for each item in the above, such as courses taken (attach transcripts), projects completed, etc.

Competitive salary commensurate with the applicant's qualifications. Compensation package includes comprehensive medical insurance and transportation. Equal opportunity employer. No citizenship requirements. No smokers. The candidate should not have any obstacles to obtain a security clearance. Applications are sought immediately and will be accepted until the position is filled, with no specific deadline.

Applications and inquiries should be forwarded to:

Prof. Levent Gürel

Director, Computational Electromagnetics Research Center (**BiLCEM**)

Bilkent University

e-mail: [lgurel@bilkent.edu.tr](mailto:lgurel@bilkent.edu.tr)

**Kimler başvurabilir?** 4 yıllık bilgisayar mühendisliği (CS veya CENG) bölümlerinden mezun olmuş veya olmak üzere olanlar, daha önce paralel bilgisayarlar üstünde paralel programlama deneyimi olanlar, sigara kullanmayanlar, kendi kendini motive edebilenler. .... **Kimler başvurmamalı?** "Ben de programcıyım" diyenler, bilgisayar mühendisi olmayanlar, Fortran ve MPI bilmeyenler, sigara kullananlar.



**Computational Electromagnetics Research Center**

Bilişimsel Elektromanyetik Araştırma Merkezi

Bilkent Üniversitesi Bilişimsel Elektromanyetik Araştırma Merkezi'nde (**BiLCEM**) uygulama alanları hızla genişleyen ve son yıllarda tüm dünyada önemi gittikçe artan bilişimsel elektromanyetik konusunda araştırma, eğitim ve üniversite-endüstri işbirliği kapsamında proje çalışmaları yapılmaktadır. **BiLCEM** hakkında daha fazla bilgi için: [www.cem.bilkent.edu.tr](http://www.cem.bilkent.edu.tr). Bilişimsel elektromanyetik alanı, gerçek yaşam uygulamalarında karşılaşılan karmaşık elektromanyetik problemlerin bilişim olanaklarının kullanılarak çözülmesini sağlar. Farklı disiplinlerde uzmanlaşan akademisyen ve araştırmacıların bir araya gelmesiyle oluşan sinerji sayesinde, **BiLCEM**'de savunma, uzay, tıp, elektronik, iletişim, radarlar, antenler, elektromanyetik uyumluluk, optik, görüntüleme, uzaktan algılama ve nanoteknoloji gibi pek çok alandaki problemlerin elektromanyetik çözümleri gerçekleştirilmektedir. Bu çeşit karmaşık problemlerin çözülebilmesi için hem yazılım, hem de donanım bakımından en yeni bilişim olanakları (özellikle, paralel bilgisayar sistemleri) kullanılmaktadır.